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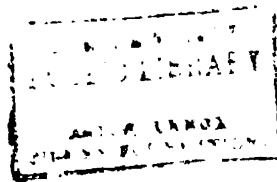
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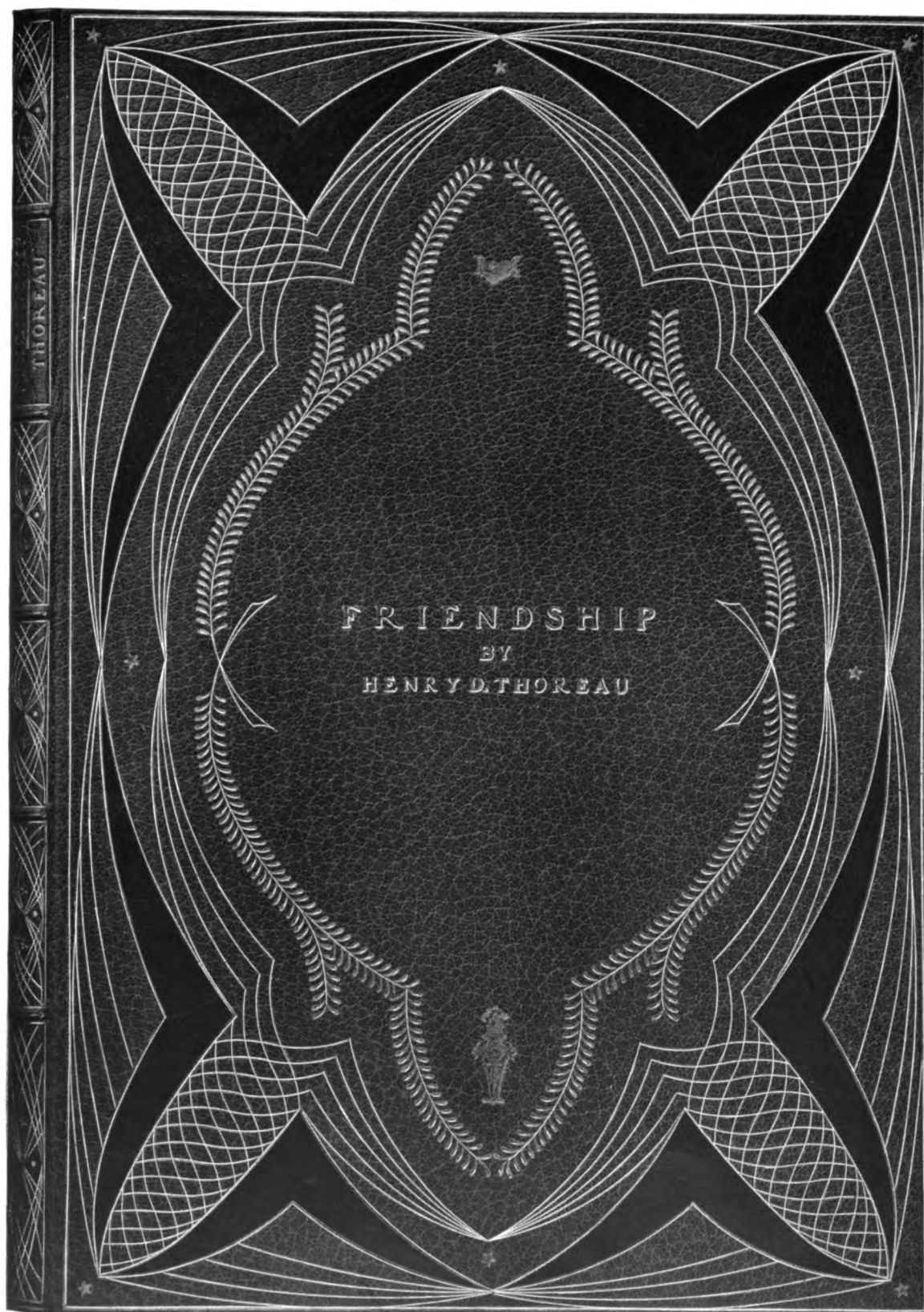
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FORMULAS FOR BOOKBINDERS





Designed and executed by L. H. KINDER.

FORMULAS FOR BOOKBINDERS

By LOUIS H. KINDER

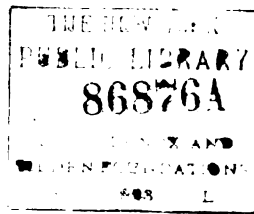
AUTHOR OF "THE WHISPER," AND HEAD BINDER AT THE ROYCROFT SHOP

Being a Collection of
Trade Formulas, the
Results of Twenty-
five Years' Study and
Practice in the Arts
of Tooling in Gold,
Edge Gilding, Mar-
bling, Stamping, and
various other Depart-
ments of Bookbinding

EAST AURORA, N. Y., U. S. A.
THE ROYCROFTERS

LONDON
G. P. PUTNAM'S SONS

PRINTED BY THE ROYCROFTERS AT THEIR SHOP
WHICH IS IN EAST AURORA, ERIE
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MCMV



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by
LOUIS H. KINDER

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Of this edition of "*Formulas For Bookbinders*," by Louis H. Kinder,
there were printed four hundred and ninety copies on Imperial Japan
Vellum. This copy is No. 251

Louis H. Kinder

To my sincere friend, Fletcher W. Battershall, whose love for and un-
ceasing labors in the study of artistic bookbinding I have ever deeply ad-
mired, these Formulas are dedicated.

L. H. K.

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A FEW WORDS OF GRATITUDE

Words cannot express the feeling of gratitude I owe Mr. Elbert Hubbard for his encouragement and coöperation which rendered this work not only possible, but very delightful and pleasant to me.

I am also directly indebted to him for many recent achievements and discoveries which it has been my good fortune to accomplish, for it was in his beautiful institution, The Roycroft Shop, where I enjoyed many and various opportunities and privileges necessary for study and development.

I likewise feel grateful towards the Roycroft printers for the patience, masterly skill and artistic taste displayed in the printing of the book.

BY THE AUTHOR.

East Aurora, N. Y., U. S. A., January 10, 1905.

FOREWORD

*A few words of appreciation and some expressions of joy
which the writer always finds in his work:*

Encouraged by the receipt of many testimonials volunteered by grateful subscribers of **THE WHISPER**, and assurances of liberal support from many of my brother binders all over the world, I now make public, without reserve, all of the formulas that I have worked out and tested in my quarter of a century in the laboratory and at the bench.

Honor and a high sense of appreciation impel me to put forth my very best efforts and to make this the work of my life. The question as to how well I have succeeded in my endeavor, can best be announced by a fair test of the formulas. No test can be too severe, the results, I am confident, will only verify all that I claim for them, and perhaps more.

The formulas contained in this book comprise the twelve recipes published in **THE WHISPER**, and in addition thereto a great many others of far greater value. The fact that the twelve recipes alluded to brought forth such universal praise and appreciation, cannot fail to establish in the mind of any intelligent reader ample confidence as well as an assurance fully warranted, of the very material aid which these additional formulas, suitable for a wide range of work, will furnish.

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TRADE secrets of any considerable value are seldom published, on account of selfish motives and because the remuneration is always insignificant as compared with the amount of work involved. To find a combination of chemicals and to discover, by extensive experiments, the proper way of mixing them; to ascertain the right proportion of the various ingredients, and to produce a compound which will meet all requirements under the different conditions, demands more work than the average individual imagines. It requires the toil and experience of years. A formula should never be published before its practicability and fitness has been ascertained. Most of the formulas herewith presented I have successfully employed for more than twenty years, which proves their reliability. You must not lose confidence when your first attempts in applying my formulas should not be rewarded with the desired results. The application of any new process requires time, patience and experience. The particular branches in which I have attained exceptional success, are finishing, marbling and gilding; particularly the first named.

I have extensively studied the art of fixing gold leaf to leather. The results have been really marvelous, and, strange to say, the whole process has narrowed down to one simple prepara-

Author's Note.
Being a brief outline of the text.

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Author's Note.
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tion upon which the whole success in the art of finishing depends. This one application in finishing is the one which is the least appreciated. There are, of course, other particulars important for superior finishing which have received due consideration in exhaustive treatises on finishing. I present here a number of formulas bearing on this subject, which will provide a fund of knowledge never offered before. These instructions will prove of inestimable value to those who aim high and possess perseverance.

Very closely allied to finishing, is stamping. On this subject, too, the book contains valuable information, comprising suggestions on stamping badges in gold and other metal; the stamping of large surfaces solidly in gold; the stamping of ooze sheep, ooze morocco and ooze calf, a line of leathers now rather extensively used in most binderies; and many other suggestions of equal importance.

In my own practice, as well as in my capacity as bindery foreman, I do not even tolerate use of powder, excepting for lettering leather goods for the store trade. Even in the latter instance, sizing should be applied whenever the price to be received permits. For stamping badges, cases, etc., and for finishing of books of any description, powder is entirely unsuitable. It does not permit the practical handling of the work, ruins the delicate finish of certain materials and can only with difficulty be removed from grained stock of any description. Gold fixed in this way wears off soon and does not possess the desired lustre.

Among the formulas for finishing will also be found suitable

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material for producing a nice, deep brown in blank-rolling fleshes. The great number of chemical combinations I give will afford the ardent student great opportunities for further improvements. Good results and artistic effects are possible only when true love for the work in hand exists. The intelligent man who is interested in his work will always succeed. To him nothing seems impossible, and no matter how great the obstacles may appear, he will overcome them and gradually force his way to the top of the ladder. The collection of sizes for finishing and stamping includes one formula of which I am particularly proud. It can be used with equally good results for gold or other metal; it is fluid like milk and is readily absorbed so that it can be easily applied with either a sponge or a camel's-hair brush. It does not stain even the most delicate shades of leather and is very adhesive, even in a diluted state. The results are equally good, whether it is used on calf or morocco, cloth or paper. This fact makes it, practically speaking, an all-around size of exceptionally good qualities, and with great pleasure I refer to it as one which has never failed me. I am confident after a few trials you will agree with me that this one formula alone is worth many times the price of the book.

The gilding of edges has received equally careful attention. Every detail of the process was made a special study and the results have been clearly stated under the respective headings. The formulas bearing on this subject I have simplified as much as possible, and given to the craftsmen at large, confident that the results will prove as satisfactory to them as they have

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line of the text.

been to me. ¶ The filler "B" for soft paper will be much appreciated, especially because of the extensive use of soft paper at the present time. Filler "A," a very complete description of which appeared in *The Whisper*, can be used as filler and gives fair results. It is really better adapted for rubbing down, whenever this operation seems expedient. Another very important pointer, included in the treatise on gilding edges, is the one relating to the gilding of books printed on surface-coated paper. This paper, as we all know, has the tendency to "stick" badly in gilding, but if treated according to my instructions, that serious trouble is entirely averted. Several formulas for preparing bole (generally known as red chalk), and black lead are given. Glair and commercial albumen sizings for laying-on have also been fully treated; the results of my investigations in this field, too, have been very satisfactory. There need be no fear of pin-holes or lack of lustre in your edges if my instructions are carefully followed. The suggestions on metal edging, both in white and yellow metal, are exhaustive and valuable. They are also timely, since the manufacture of metal leaf has greatly improved during the last few years, and very little has ever been said on this subject in trade literature.

The art of marbling has never been placed in a true light before the craft, and is, consequently, to this day, shrouded in mystery. The most important detail connected with this work is the way of preparing the color so it will neither rub nor break; this is fully accomplished by the use of my formulas. Any of the common dry mineral colors as well as lamp-black

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can be used with perfect results. For red, a lake color is preferable. It should be bought in paste form (pulp), and if it is of the right quality, it will offer very little difficulty. Small dealers do not generally handle lake colors, and it is often difficult to get the right article from large dealers. There are several houses in New York and Chicago dealing in marbling colors, but in my practice I often found their red lakes unnecessarily dear and generally not sufficiently light-proof. As a rule, they soon fade on exposure to sunlight. Red lake, suitable for marbling, need not be costly, still, in shops where but little marbling is done, a few cents, more or less, for the price of red lake need not be seriously considered. Bright maroon-carmine lakes are necessarily expensive, but the pleasant effects produced, and the durability which these colors possess, more than repays the difference in cost. Besides the complete instructions for the preparation of color, the size and expanding mediums are completely described. Gum Hogg, Tragacanth and Irish moss, being the principal ingredients used for marbling size, are separately treated and full particulars are given of all details connected with the preparation of each, together with original suggestions relating to the preservation and "cutting" of the sizes. In addition to the usual expanding mediums, gall and soap-water, a few other ingredients are mentioned which have always produced superior effects.

Marbling I have always considered as the most interesting study connected with our craft, and I sincerely hope that these comprehensive formulas, accurately and truthfully given, will prove an incentive for many to take up this art. The

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publication of these formulas will remove every obstacle that ever confronted the ambitious beginner.

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line of the text.

The formulas thus far enumerated comprise the main feature of this work. In addition to these, the book contains several other formulas which, while of minor importance, are not less valuable. These relate to red edging, paste making, colored edges with tooled effects in gold, etc., together with some valuable suggestions on sundry other subjects. Beyond question, this is the most valuable collection of trade secrets ever made public, and offered to the craft at a nominal figure.

¶ What would I have not offered twenty years ago for like opportunities! And will this great sacrifice meet with the approval and appreciation which it justly deserves? Will those who are benefited by it volunteer their aid in my behalf by freely and unreservedly telling their friends of it? I have every confidence in you and know that you will not hesitate to conform to so fair a request as this. It is our duty as men of lofty principles and as fellow-workers to help one another. Give credit to whom credit is due. Most of us spend many a dollar needlessly for amusements. Here is the opportunity for an investment of a few dollars which will bring you joy and success and enable you to turn out good work. This means a steady position with a good salary.

In a spirit of sincere friendliness I give my book, which contains the results of twenty years of persistent study, to the public. I trust this little volume will shed light upon some mysteries which hitherto have been jealously and successfully guarded. I hope my gift will be received with the same good

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spirit in which it is dedicated, and that it will serve well the purpose for which it is intended. May it prove a true helpmate to my fellow-craftsmen and serve to promote the beautiful art of bookbinding.

Yours faithfully,

LOUIS H. KINDER

East Aurora, N. Y., Feb. 17, 1904

Author's Note.
Being a brief outline of the text.

PART ONE
FINISHING AND STAMPING

N O T I C E

The Formulas always begin with their respective numbers and to render these more distinct they have been indicated by brackets printed in red, thus: [No. 57a.]

FINISHING AND STAMPING

THERE are many finishers who attach an unnecessarily great importance to the various details connected with this work, and worry about the results. Worry causes uncertainty, and uncertainty means questionable, often poor, results. Therefore, be confident! If you but put faith in your work, you will easily overcome all obstacles. By applying the following formulas you will succeed.

¶ The formulas for finishing I have classified under five headings, viz., Washes; Fillers; Glair and Sizings; Oils and Greases for laying-on, and Grease Removers; Brightening of the Gold.

¶ In dissolving gums, glues, etc., it is sometimes advisable that it be accomplished in a double boiler (in water bath) rather than to apply fire directly to the vessel containing the ingredients to be dissolved. The result will generally be more satisfactory; the solution will be stronger and always clear. This very principle you must apply to the glue every day. You dissolve and keep the glue hot by placing the vessel, or kettle containing it, within a larger vessel, called a boiler, which you partly fill with water. The fire must be applied to this boiler. This is what I mean by "dissolve in bath."

¶ Wherever alcohol, or any highly inflammable ingredient is used, it must always be accomplished in "bath," and even then great care must be used to avoid ignition of the fumes.

Finishing and
Stamping.

Introduction.

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WASHES

Finishing and
Stamping.

—
Washing.

OFTEN a thorough washing of the book is necessary, because of untidy forwarding, or rather covering, where otherwise successful finishing might just as well be done without it. A great variety of leathers do not require to be finished in a moist state. My long and varied experience in this work has thoroughly convinced me that the best results are obtained when leather is finished dry. When should books be finished dry and when moist? To answer this question properly would require more space than I have here at my disposal. In my *Treatise on Hand-Tooling*, fully illustrated, which I will publish in the spring of 1905, this point will be thoroughly explained.

To be brief and consistent, all smooth and soft-grained leather should be finished dry, while hard-grained stock will work better somewhat moist. To the former class belong blank-book cowhide or buffings, calf, calf-finished roans, sheep or skivers, likewise soft-grained moroccos and levants, whether real or imitation; these should be finished dry. On the other hand, any hard-grained roan, sheep, skiver, buffing, cowhide, morocco and levant will work better if finished somewhat moist. A little judgment will soon put you on the right track. It is simply a matter of being able to distinguish hard from soft leather. Not all pelts make soft leather; it is according to the nature, age and sex of the animal whether the pelt will make soft or hard leather. The unnatural hardness of some leathers is often caused by tanning. This is especially true of Persian morocco, domestic Turkish moroccos, levants

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and the large majority of embossed leathers. However, in all fine grades of leather, imported moroccos and levants especially, this defect is directly due to the nature of the animal which furnished the pelt, a condition over which the tanner, of course, had no control. Extensive users of imported levants are fully acquainted with these facts. Leathers, like most other things, excepting salts, will not keep moist forever. It does not attract moisture, but expels it by evaporation, and dries out very soon. Even our best efforts to keep the leather moist can only meet with limited success, no matter what ingredients we may use. The drying process goes on without intermission, and this fact renders the finishing more or less uncertain. To meet this condition, we must consider the temperature of the workshop as well as the atmosphere without, the amount of finishing to be done, and accordingly, prepare a larger or smaller number of books at one time. The heat of the tools, too, must be increased as the leather dries out. Thus you will readily agree with me that in order to obtain the best uniform results with the least possible efforts, the leather should be finished dry. With very few exceptions this can be successfully done. Before closing this chapter, I wish to call attention to the erroneous belief of some finishers that the glair also should be made as slow-drying as possible. To attain this object they generally add to it a little glycerine. This practice is absurd, for it prevents the drying of the glair, leaves it sticky, and so delays the work. By the time the glair is sufficiently dry to commence finishing, the leather too is nearly dried out. A drop or two of glycerine added to the

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Washing.

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—
Washing.

glair, will assist in producing a better polish, but at the same time, its presence in the glair is detrimental to the “holding” of the gold. I would rather sacrifice it for the “holding” of the gold, if it were impossible to otherwise produce a high polish. Glycerine is well qualified as a softener, and it will preserve the pliability of leather, for a number of hours at least. If its use is desired, you will do better by adding it to the wash. Moisture on the surface of the leather is highly objectionable. To do moist finishing successfully, you must follow these rules: Wash thoroughly with any solution likely to keep the leather moist for several hours, immediately apply the filler, if one is deemed necessary, and follow this with a coat of glair, plain or combination, which will leave the surface of the leather sufficiently dry within ten or fifteen minutes from the time of its application to admit of finishing. Thus you will obtain the desired object and have the moisture where it is needed, not on the surface, but in the very body of the leather. Now you can commence finishing. This moisture is necessary to keep the leather soft. It is also well to remember that the thicker the leather, the longer it retains moisture. I give now a number of ingredients which serve this purpose well, either singly or in combination.

FORMULAS

[No. 1.] *Vinegar*. Preferably cider or pure wine vinegar. Can be safely used on any leather.

[No. 2.] *Aqua Ammonia*. Commercial aqua ammonia (not the “Household,” which is considerably weaker) diluted with

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from 100 to 200 per cent of water, according to color of the leather. It can be used successfully on dark-colored roans (sheep) and skivers, but it is not suitable for moroccos, levants or light shades of leather of any description.

[No. 3.] *Juice of Lemon*. Use in place of vinegar for delicate shades of leather of any description.

Finishing and
Stamping.

[No. 4.] *Muriatic Acid*. Sufficiently diluted with water to taste slightly sour.

Washing.

[No. 5.] *Nitric Acid*. Diluted with water, the same as muriatic acid.

[No. 6.] *Urine*. This should be bottled and left standing from two to four weeks before using. Throw away the sediment at the bottom of the bottle. Fresh urine is not effective. A few drops, say from 8 to 12, each of aqua ammonia and nitric acid added to a cupful of old urine, will prove effective.

[No. 7.] *Glycerine and Rose-Water*. Put one teaspoonful of glycerine and rose-water in a cup and add to it five teaspoonfuls of water. This mixture will not only keep the leather moist a considerable length of time, but will also render it soft and pliable. I prefer it to any wash I have ever used. It is easily obtained and very agreeable to use.

[No. 7a.] *Oxalic Acid*. Dissolved in water and sufficiently diluted with the same to leave a strong, sour solution, is a good wash for leather. It is especially adapted as a cleanser for law sheep and skiver.

The Mounting of
Embossing Dies.

A concentrated solution made with hot water is efficient in removing grease from metal, hence the stamper uses it for washing the backs of electros and brass dies, just before he

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glues them to the die-block. The die-block is also washed with it. This causes the paper mount to adhere better to the iron. For these purposes some stampers prefer to dissolve the acid in wood alcohol.

Finishing and
Stamping.

—
The Mounting of
Embossing Dies,
and the
Covering of Metal
with
Leather, etc.

When articles made of tin, or any other kind of sheet metal, are to be covered with leather, cloth or paper, it is well to wash them with oxalic acid, dissolved in either water or alcohol, before covering. For covering, use strong fish glue diluted with vinegar. The same medium should be used by the stamper for glueing the dies to the blocks. Dies so fastened will seldom drop.

This concludes the chapter on that part of finishing which is generally termed "washing." That on the "filling" of the leather follows.

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FILLERS

WHEN leather is to be gilded by the machine, a class of work generally referred to in practice as “stamping” or “press work,” the filler can safely be omitted. With hardly an exception, such work does not require a filler, owing to the absolutely steady impression produced by the machine.

Not so, however, in finishing. Here hand impressions form the basis of the work. Success in this work largely depends upon certainty and steadiness. But these hand impressions, produced by the direct application of physical strength to the die, without an intermediate agent, such as a machine, reducing exertion to a minimum, are always, even under the most favorable conditions, more or less uncertain—unsteady. Many defects in finishing and tooling can be traced directly to this shortcoming.

The application of a coat of filler to the leather will, of course, not affect a certain and steady impression, but it will have a tendency to cause the gold to adhere (“hold”) where, without it, owing to unsteadiness of impression, it probably would not, for the filler—as we all know, or should know—if properly applied, fills every little pore and crevice, thereby preventing to a large degree the absorption by the leather of the glair which is subsequently applied. The glair then dries on the very surface of the leather. This condition makes the “holding” of the gold so easy—so certain—and almost entirely independent of any steadiness of impression. In some instances a filler may be necessary to prevent discoloration of

Finishing and
Stamping.

General information relating
to the filling
of leather.

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Finishing and
Stamping.

General infor-
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the leather by the glair. This is true of delicate shades of calf, law-sheep and skivers. These leathers must be well filled and not glaired until the filler has had time to thoroughly harden. This, of course, applies only to finished (tooled) work; in press work the filler should be omitted and the glair so far diluted as not to leave a stain on even the most delicate shades of leather.

However, in gold tooling (finishing) also, good results may be obtained without a filler. The texture and the finish of some leather is sometimes of such fineness that mere washing with vinegar or glycerine and rose-water mixture is quite sufficient. To fill such leather with either paste or glue would be an unpardonable blunder. Do without the filler if you can. A piece of furniture cannot be polished without filler: the filler in this case will enhance the effect of the finished product. Like the furniture maker, we must aim to heighten the effect of the finished product. In our case, however, the filler is not a suitable medium, because it will harden the leather and produce an entirely unnatural appearance, resembling paper. Do not try to obtain the desired results by simply plastering the leather with gold and colored inlays, without giving due attention to the preservation of the natural appearance of the leather, which to destroy would be an inexcusable outrage against the laws of esthetics. Always preserve the natural beauty of the leather—this softness—which is an artistic effect in itself. Often this is shamefully neglected by most binders; the forwarder also usually spoils this beauty by excessive stretching of the leather, and soaking in water before it is put on the book.

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The question is: Which leathers should be filled and what filler should be used?

According to the nature of both, the leather as well as the work, the use of a filler may be advisable or not. If a filler is necessary, washing may precede the application, or the washing may be omitted. Which method should be employed is a question to be left to the judgment of the finisher. I will give some directions, however, which you may safely follow. To render them more comprehensible I will divide finishing into two classes: Decorations, consisting of both blind and gold tooling (combination work); and such work as calls for gold tooling only. In referring to these two classes hereafter I shall merely specify "Combination Work," or "All Gilt," as the case may be. The leather I will arrange into divisions and refer to them as Class I, II and III respectively.

Class I comprises genuine Russia; American Russia (cowhide); and buffings in blank book finish, calf finish and water-grain; English, American and German calf; roans and skivers in paste, water, straight grain and calf finish; law and blank sheep, and skivers; pass-book skivers, title skivers and batwings.

Class II comprises American Russia (cowhide) buffings; calf, roans and skivers in seal, levant and morocco grain.

Class III comprises genuine levant of French, German, English and American tannage, in plain colors and marbled; Turkish and gros-grain morocco in plain colors and marbled; Persian (India sheep), in levant, seal, morocco and Vienna grain, both in plain colors and marbled; Bock morocco.

Finishing and
Stamping.

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of leather.

Combination Work on Class I Leather. (Decorations consisting of both blind and gold tooling.)

Blind in such portions of the design as will be required as guides for the finisher; in some instances, however, a few marks with the folder answers this purpose. Now apply the "wash" and blind-tool while considerable moisture remains in the leather; only then can a nice, deep and uniform color of all impressions be produced.

Next retouch with luke-warm tools all impressions which are to be worked in gold. This, of course, is not necessary if these impressions are still deep and plainly visible, but in washing they are often nearly obliterated. However, care must be taken not to use the tools so hot as to discolor the impressions.

A starch or flour paste filler from the list which follows is now applied, and when the surface is dry, the book can be given one coat of glair (one coat is always sufficient).

Lay on gold as soon as the glair is dry and hard; tool, clean up and retouch with moderately hot tools the blind-tooling.

¶ If the leather is to be polished, it may be done now or just before laying on, after glairing.

Combination Work on Class II Leather. Substitute one of the glue fillers in the following pages for the starch or flour paste filler called for under Class I; in all other respects follow exactly the directions given there.

Combination Work on Class III Leather. If the leather is hard and rough, proceed as directed in Class II. Should the leather be soft and pliable, however, resembling leather as is used in the making of fine kid gloves, it will be best not to

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apply any filler. In place of it you may wash the leather lightly with the glycerine and rose-water mixture.

All-Gilt Work. (Decorations calling for gold tooling only). In this work you have to merely omit from the rules laid down for Combination Work such directions as have reference to blind-tooling. Otherwise follow those rules exactly.

¶ The following eleven preparations under numbers eight to eighteen, inclusive, are exceptionally well suited for the purpose under consideration, viz., for filling leather which is subsequently to be glaired and finished or gold tooled. Of these, numbers eight to eleven, inclusive, are especially adapted for leathers of Class I, although they may, with slight modifications, in some cases, be used on other leathers with good results. Experience has taught me that numbers twelve to eighteen, inclusive, will serve their purpose better if used for leathers of Classes II and III.

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of leather.

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[No. 8.] *Flour Paste.* I strongly object to the use of patent paste for this purpose. Without exception, this paste dries too quickly and leaves the leather streaky and soiled. Therefore let me urge you to make a little of the old-fashioned kind—alum paste. Add a little powdered alum to the wheat flour, and a few drops of glycerine just before boiling, or prepare according to the paste formula which you will find in another part of the book.

For leathers of Class I, reduce with water to the consistency of thick syrup; for leathers of Classes II and III, if its use is

Fillers.

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Stamping.

—
Fillers.

insisted upon, reduce with water to the consistency of cream.

[No. 9.] *Flour Paste with Vinegar*. Use the same paste as for No. 8, and reduce with vinegar instead of water. Otherwise follow directions as given in No. 8.

[No. 10.] *Starch Paste*. Prepare by boiling common rice starch as if for starching clothes. Reduce with water as in No. 8. I can recommend this pure and simple starch filler principally for sprinkled work, and especially where iron is used for sprinkling. But use it only as long as it is sweet. It will sour quickly, and in warm weather it is not advisable to prepare more than you expect to use the same day.

[No. 11.] *Vinegar-Starch Paste*. Below I recommend Elastic starch for this preparation. However, common lump starch (rice) may be used with equally good results.

Simply boil starch in vinegar instead of water. It should be about the consistency of syrup. Place a heaping teaspoonful of Elastic starch in a quart china bowl and add to it a sufficient quantity of cold vinegar to form a thin paste. Next, put a pint of vinegar into an agate-ware vessel, bring it to the boiling point and add it gradually to the starch mixture in the bowl, stirring briskly with a stick of wood to prevent the formation of lumps. It should be kept in a preserving jar, never in a tin dish, nor must it be stirred with a knife unless the same be nickel- or silver-plated. Extreme care is also necessary in the selection of a dish in which the vinegar is to be boiled. An agate-ware vessel is the most suitable, but its lining must be perfect, and not chipped off here and there, for we all know what the combination of iron and vinegar means

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when applied to leather, especially if delicate shades. The least trace of iron will more or less darken light shades of leather, so be cautious. Put into a preserving jar and stored away in some dark, cool place, this preparation will keep indefinitely. Numbers 12 to 18, inclusive, comprise glue fillers. As the raw material varies much in quality, the consistency of these preparations must be modified to meet the requirements of the work. Moreover, most finishers take glue from the nearest pot, which already contains more or less water. Therefore, I shall not attempt to give exact proportions for the preparation of this line of fillers. With a little practice and judgment the finisher will soon learn to find the consistency most suitable for the different classes of work. These fillers are especially adapted to leathers of Classes II and III.

Finishing and
Stamping.

—
Fillers.

[No. 12.] *Isinglass* (a certain brand of Russian fish glue). In its raw, dry state it comes in broken tablets, generally about three-sixteenths of an inch thick, with uneven surfaces and of a cream color. In this state it is not very soluble. It can, however, be procured in a prepared state, usually shredded. This article, known as prepared isinglass, can be bought of Messrs. William Zinsser & Co., 197 William St., New York. ¶ Prepare thus: Fill a half-pint cup half full of prepared isinglass (packed moderately solid), add an even teaspoonful of cream of tartar; now fill cup three-fourths full with boiling water, stir well and add sufficient grain-alcohol to fill cup; stir again and strain through a piece of coarse, unbleached toweling, preferably an old piece. A pinch of salicylic acid or a few drops of formaldehyde, added just before the boiling

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water is poured in, will help materially in keeping it sweet for some time. It is now only necessary to dilute it with warm water to the consistency required. It should be used while it is rather warm.

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Stamping.

—
Fillers.

[No. 13.] *Gelatine*. There are many brands of this article on the market, varying greatly in quality and price. For this particular purpose a fancy article is not required, still, the question of cost is of no serious consideration, because a pound will be sufficient for a long time. An imported gelatine of "gold label" quality, at about sixty cents per pound, will be found a good article. It comes in the form of very thin tablets, measuring about three inches in width and nine or ten inches in length, and should be nearly as clear as glass. Break up in small pieces one of these tablets into a half-pint cup, and fill with hot (not boiling) water. This consistency will be about right for any kind of leather. It must be applied quite warm. I cannot recommend gelatine as a good filler; I merely quote it here because some finishers insist upon using it.

[No. 14.] *Le Page's Glue*. This is a superior grade of fish glue, prepared and sold in liquid form in cans of various sizes. It makes a fine filler, but is rather quick-drying and a little brittle; this, however, can be remedied somewhat by mixing in a little glycerine before diluting with the necessary amount of water; warm water is preferable. It can be used warm or cold. It may also be used for metal stamping.

[No. 15.] *Ordinary Glue* (hide or bone). Get a cupful of rather warm water and add to it from the nearest pot a few drops of hot glue—from 10 to 25 drops, according to the work.

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[No. 16.] "*Glutino*." This is one of the many flexible glue preparations now sold. It is extensively used for lining-up, head-banding, etc. White, Sons & Co. of Boston have the sole agency for this particular brand called "*Glutino*." I mention this brand, because in my practice it has given me very satisfactory results; but there may be other brands equally good. It has only to be dissolved in a little hot water, like ordinary ground glue, and then further diluted in the same proportions as given in No. 15; and like it, should be used warm. As a filler it has many fine qualities which place it at the head of the list of glue fillers, especially suitable for levant and morocco.

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Fillers.

[No. 17.] *Parchment Glue*. Obtained by boiling parchment scraps, either calf or sheep, in water. Use a double boiler, to prevent burning. It is a slow process, but the result is a glue, or size, of excellent quality. As a filler it should be applied warm, and must not be used strong.

[No. 18.] *Fish Glue*. Ordinary liquid fish glue (unlike Le Page's glue) is not obtainable at general stores, and has to be ordered either of exclusive glue dealers or of technical supply stores. Diluted with either water or vinegar, sufficiently to merely impart a little color to the water or vinegar, whichever is used, it makes an effective filler for levant and morocco. If liquid fish glue cannot be procured, use the dry article. This can be bought of nearly all local druggists. It usually comes in long, narrow pieces, with pointed ends, of all sizes, and irregular shapes, about three-sixteenths of an inch thick; is of a yellowish brown color, and decidedly opaque. For direc-

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tions of dissolving the same, see "Fish Glue," under the heading, "Sizes and Glair."

[No. 18a.] *Dennison's Glue*. A superior brand of liquid fish glue, which, diluted with either water or vinegar, or both, makes a good filler for levant and moroccos.

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Stamping.

—
Fillers.

This ends the chapter on fillers. As the chemicals and ingredients enumerated in this list have in my long practice proven especially adapted for this purpose, I am confident that they will be serviceable in all instances.

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GLAIR AND SIZE

A SOLUTION of shellac in water is in some respects an excellent finishing size, possessing the following good properties: It imparts a brightness and lustre to the gold impression, preserves the original brightness and clearness of the leather, does not stain to the touch, is quite water-proof and polishes well. But the disadvantages of this size are of such a nature and proportions as to render the practicability of the preparation questionable as a finishing size. These are: It will readily coagulate if brought into contact with vinegar, or any wash or filler containing even the slightest trace of acid. It is true that this can be overcome by washing with the glycerine and rose-water "wash," or any wash slightly alkaline, and using a filler containing neither acid nor vinegar. But the main objections, which time and study have not been able to remedy, are the "filling in" of the gold and the fact that the heat of the tools must be very closely watched, rendering rapid working impossible. Thus it will be seen that such a size would not be entirely satisfactory to the needs of the busy finisher, to whom "time is money."

A really good finishing size must, in addition to all the good features contained in shellac size, possess the property of bringing out every impression clearly, without even a tendency to "fill in," and above all, in order to permit rapid working, it must be qualified to fix the gold perfectly under varying degrees of heat.

The Properties of Glair. Glair, made of the white of egg, or egg albumen, both being practically the same, produces,

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—
Glair and Size.

Shellac Size
not satisfactory
for Finishing.

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Finishing and
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—
The properties
of Glair
critically
considered.

beyond question, the best gold lustre obtainable. It brings out very clear impressions and possesses the admirable quality of fixing the gold more permanently than any other substance, if the tooling is done with the proper heat. The reason it is remarkably suitable for this purpose is easily demonstrated. If you drop a small quantity of white of egg into boiling-hot water, it is almost instantly converted into an insoluble, hard mass, a substance which is no longer affected by any acid, water, or even high temperature.

This same process of transformation goes on in tooling if the proper heat is employed. This accounts for the fact that the gold on law book titles, stamped with egg glair, is not affected by the subsequent polishing, although the gold rests on the very surface of the leather.

With all these excellent qualities, glair would be highly recommendable, did it not possess many characteristics which render it objectionable for finishing purposes—at least for certain divisions of this work. I will enumerate the weak points of glair: It is very sensitive, requiring every impression to be struck with absolute steadiness and without the slightest hesitancy; it is not waterproof, and the finished work will easily stain in handling, leaving finger-marks plainly visible. When the glair is once dry, only very hot tools will affect the fixing of the gold, and if mending is necessary, it can only be accomplished by a re-glairing of the imperfect impressions.

In comparing the advantages and disadvantages of the two mediums, shellac size and glair, the question how a really good finishing size can be prepared, is easily answered, viz.,

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by combining these two ingredients in certain proportions. Absolute perfection is an utter impossibility, but the combination referred to comes pretty close to it. The respective formulas give the way they should be combined so as to get the best possible results. Fifteen formulas for preparations especially adapted for finishing and stamping, are here given.

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Stamping.

White of Egg
Glair.

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[No. 19.] *White of Egg Glair.* To the white of one egg add as much pure cider vinegar as would be equal in volume to one-sixth part of the white of egg. In other words, combine one part vinegar to every six parts of white of egg; then add six drops of oil of wintergreen, six drops of oil of sassafras, and six drops of syrup of squills. For a receptacle use a china or earthen bowl (never tin). Beat the mixture well with an egg-beater, and let it stand over night. In the morning remove the crust which has formed on the surface, pour off slowly, taking care not to disturb the white sediment at the bottom, which is useless and must be thrown away, and put the clear liquid into a bottle or well-covered earthen crock. Keep it in a dark, cool place, and never take out more glair than would be used in half a day, for it readily evaporates and thickens upon exposure to air. Do not put any back into the receptacle after it has been used, even if it is not soiled. If too much oil is added, the glair will soon coagulate, that is, it will thicken and turn white. In this state it is, of course, useless. However, the cause of this trouble may also be attributed to the oil having been of more than usual strength.

[19]

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Finishing and
Stamping.

Commercial Egg
Albumen Glair.

¶ For stamping leather, dilute this glair with from twenty-five to one hundred per cent of water; for cloth, one hundred to three hundred per cent of water may be added, according to the material and the work.

[No. 20.] *Commercial Egg Albumen Glair.* Put half a cupful (one-fourth pint) of the purest egg albumen procurable into a quart china bowl, add one even teaspoonful of acetate of soda, three cupfuls (three-fourths of a quart) of cold water, and two teaspoonfuls of fresh milk. Stir up well with a folder and let stand until the following day. Then remove the scum with the straight edge of a piece of reasonably stiff paper, stir again thoroughly, as a goodly portion of the egg albumen will be found in a thick mass at the bottom of the bowl; let it stand at least five hours, or better, over night, so that all impurities may settle at the bottom. When this has taken place, and the solution appears perfectly clear, pour off into another bowl, taking care not to disturb the useless sediment. Now add a half-teaspoonful of oil of wintergreen and a like quantity of oil of sassafras, beat the mixture well with an egg-beater, and pour it into an earthen crock. In this state it will keep indefinitely, be pleasant to use, and not froth a great deal. If convenient, keep the crock in a dark, cool place; on the floor under your work bench will do. Take from the crock only as much size as you intend to use the same day and never under any circumstances return to the crock glair that has been used, no matter how clear it may be. This rule applies to any other preparation. The crock should be covered.

¶ For stamping purposes, dilute the glair with water in the

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same proportions exactly as was given in Formula No. 19. [¶ No. 21.] *Bleached and Refined Shellac Size*. Put eight ounces of crushed, bleached and refined shellac into a one-gallon vessel, add to it two ounces of ammonia carbonate, commonly known as smelling salt, and two teaspoonfuls of oil of spike, which should be absolutely colorless and clear as water. Mix it well with either a folder or a stick of wood, and add gradually one quart of boiling water, stirring briskly for a few moments, until the mixture ceases to sizzle. Place the vessel on a stove and allow the solution to simmer until every particle of shellac has been dissolved; then add another quart of boiling water and strain through a piece of coarse cloth into an earthen crock, where it may be kept. However, to prevent thickening, it is better to bottle it.

In this consistency it is just right for finishing, and makes an admirable size for leathers of Class I, or, in fact, for any material where gloss is not objectionable. But it must not be used over acids and vinegar, as it will coagulate at once and spoil the work. If this has happened accidentally, the size may be removed with a sponge and a weak solution of ammonia and water, but, by all means, it is better to avert it, as washing with ammonia is apt to injure delicate shades of leather. You must also be careful not to go over the same spot a second time in sizing, as this is liable to produce streaks. But when you have adapted yourself to these few characteristics, you will prefer this size to anything else. It is waterproof and fetches a high polish with moderate heat. Never apply more than one coat of size, and do not use the

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—
Bleached
Shellac Size.

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—
Bleached
Shellac Size.

tools too hot; in fact, they should be just lukewarm. For quick work on black and dark red half-roan bindings, this size can hardly be excelled. In this case, wash your books with No. 2, fill with No. 8 or 10, and give one coat of size. It may be used for moroccos and levants, but it is hardly a suitable size for these leathers. If it is to be used, wash with No. 7, fill with either No. 16 or 18, and in case the leather is to be left grained (not polished), add from one to three parts of water to every six parts of size. For stamping cloth or paper with either gold, white or yellow metal, the size may be used either full strength or diluted with from one hundred to one thousand per cent of cold water; the latter proportion would be suitable for dull-finished papers to be stamped in gold. In all instances where a glossy finish is desired, the size must be used in its original consistency, or nearly so. As already stated, great care must be taken in sizing, to prevent streaking; this is especially necessary when the size is used in a diluted state. A rather fine-textured, soft, medium-sized sponge will be found suitable for producing good results, especially in the sizing of large surfaces. Always bear in mind that to go over the same place twice in sizing means "streaks."

A few more words about the preparation of this size, and the chemicals involved: Bleached and refined shellac can be purchased in bars at some painters' supply house, and then crushed with an ordinary hammer. I prefer to buy it already crushed from Wm. Zinsser & Co., 197 William St., New York, and always order it in lots of five pounds. As the size keeps forever, there is no risk in preparing large quantities at a time.

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It cannot be kept in stock in crushed form, for upon exposure to air it soon melts and runs together in one solid lump. So it is crushed only as ordered, and should be made into size as soon as received. However, as already stated, you can buy bleached and refined shellac in bars and crush it yourself, but the fresh, prepared shellac from the factory is much more readily dissolved.

Finishing and
Stamping.

—
Glair and Size.

Ammonia carbonate (smelling salts) used for this purpose should be procured from a wholesale drug house, to insure its having full strength. It must be kept in an air-tight jar or bottle, as it rapidly weakens when exposed, and in great degree loses its power as a solvent. Take two ounces, as stated, tie it up securely in tough paper of any kind, place it upon an iron plate (such as the forwarder uses for rounding his books) and pulverize it with a hammer. Then add it to the eight ounces of crushed shellac already in the vessel.

Shellac Size.

Oil of spike can be had of druggists and dealers in technical supplies. It should be as clear as crystal.

The cooking should be done in an agate- or enameled-ware vessel, and be sure to have the water boiling hot when adding it to the shellac.

When preparing large quantities it is profitable to work with two receptacles. While one batch is on the stove simmering, another can be made ready in the second vessel. In this way the work can be greatly facilitated.

[No. 21a.] *Orange Shellac Size.* To one pound (16 ounces) of orange shellac add four ounces of powdered borax and two quarts of water. Let it simmer in a double boiler until every

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particle of shellac is dissolved, then remove the scum which has formed on the surface, and bottle for use. Use it as you would the No. 21.

Finishing and
Stamping.

Glair and Size.

Orange shellac comes in thin flakes, and is obtainable at nearly all painters' supply stores. Owing to the deep wine color of this size, it is hardly suitable for light-colored material.

[**Q** No. 22.] *Combination "A." Egg Albumen Glair and Bleached, Refined Shellac Size.* This combination size is the result of persistent efforts to combine the good qualities of shellac size and glair, and at the same time escape the defects that are possessed by both when used singly.

The two substances may be mixed in different proportions, but extensive experiments have proven that the following formula gives the best results on moroccos and levants:

Glair
and Shellac
combined.

Ten parts of glair to six parts of shellac. The glair should be poured into the shellac size; stir the latter briskly with a folder while gradually adding the former. In the preparation of the glair to be used in this combination, proceed thus: To half a cupful of egg albumen add three and a half cupfuls of cold water and two teaspoonfuls of milk; let stand, skim, stir up, allow to settle, and pour off, as explained in No. 20.

This combination is especially suitable for leathers of Class III, but may be used in all cases where glair can be employed. It can be used in connection with washes Nos. 2, 6 and 7, and all of the fillers enumerated, excepting Nos. 9 and 11.

It is not advisable to prepare this combination in large quantities, as it soon decomposes.

[No. 23.] *Liquid Fish Glue.* Some finishers and stampers in-

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sist upon using this size for stamping, principally cloth, in white or yellow metal; it is for this reason, as well as a desire to render this selection of formulas as effective as possible, that the recipe is here included.

Dry fish glue may be bought at almost any retail drug-store, but the liquid article is not so easily procured. Unless you happen to reside in a large city, you will generally find it necessary to order a supply of that useful article sent along by express. But express charges are high and the unavoidable delay is not only expensive but is often the cause of considerable dissatisfaction on the part of the customer, whose patience is being severely tried by the apparently slipshod way of the bookbinder. But even if it can be had conveniently, it is not altogether advisable to use the commercial article for sizing. Probably no two manufacturers use the same preservative in preparing the liquid glue, and this variation, together with the difference in the quality of the dry glue used, often is the cause of more or less trouble in stamping. These difficulties and drawbacks may be easily avoided by simply preparing the glue yourself, and by so doing you will have a liquid glue which you can always depend upon. After having used it a few months, you will know with certainty the quantity of water to be added for cloth, leather or paper, and these rules you will know to be safe, just so long as you prepare the liquid glue yourself. For years I have prepared my own fish glue, and find it both profitable and advantageous. There are numerous preservatives which may be used, but some of them are altogether too high-priced. Experience has taught me that

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Glair and Size.

Fish Glue.

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Finishing and
Stamping.

—
Glair and Size.

simple, inexpensive preservatives like gum camphor, carbolic acid, oil of wintergreen, salicylic acid, etc., are not only sufficiently effective, but their presence in the finishing size has no harmful influence whatever on the finishing.

As already stated, dry fish glue can be bought at almost any retail drug-store. It usually comes in long, narrow pieces, with pointed ends; it is about three-sixteenths of an inch thick, and of all sizes and irregular shapes; it is of a yellowish brown color and decidedly opaque.

Fish Glue.

Formula: Place one pound of dry fish glue in a two- or three-quart earthen crock; add to it two even teaspoonfuls each of salicylic acid, oil of wintergreen and carbolic acid, and one and three-fourths quarts of hot water. Dissolve in bath (see page 1). In a cool place this preparation will keep a long time. For metal stamping it should be diluted with from two hundred to four hundred per cent of water, according to the material to be stamped. Leather will naturally require a much stronger size than cloth. Vinegar may be used for diluting, in place of water. The addition of a little aqua ammonia will prevent "filling in," to some extent. You will find that this preparation will make a much cleaner size than most of the varieties of liquid fish glue kept in drug-stores. Besides this, you have a preparation which is always uniform. This is certain to be so, for you prepare it yourself.

Excepting as a filler (see No. 18) or in combination (see Nos. 24 and 28) it cannot be used in finishing.

[No. 24.] *Combination "B." Egg Albumen Glair and Fish Glue.* For this combination an inferior grade of commercial

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liquid fish glue is best suited. However, the No. 23 may be used as well as the No. 14. Whichever is used, put two even teaspoonfuls of it into a cup, add, in the order given, ten drops of formaldehyde and ten drops of carbolic acid. Now stir well until the mixture presents an even color; then add to it three teaspoonfuls of common white vinegar. Mix again thoroughly, using a folder or stick of wood. Add seven more teaspoonfuls of white vinegar; if the No. 23 was used, four or five teaspoonfuls of vinegar the second time will be sufficient.

¶ To every five teaspoonfuls of glair No. 20, add three teaspoonfuls of the above-mentioned mixture and two teaspoonfuls of aqua ammonia. This size will produce an almost dull finish on most any kind of material. For maroon and wine-colored morocco you may add as many as thirty drops of formaldehyde; it will prevent the darkening of these colors, but will, on the other hand, cause the size to froth a little more. The addition of too much formaldehyde, however, is detrimental to the finishing; it will prevent the sticking or holding of the gold to some extent; so, be cautious. The extra twenty drops of formaldehyde may be added after the size is prepared.

Leaving out the formaldehyde and carbolic acid entirely will produce a more gloss-giving size, suitable for polished work. For Turkey, gros-grain and levant morocco, use one teaspoonful of fish glue instead of two in the preparation of the glue mixture. Lastly, allow me to caution you against finishing too moist when vinegar has been liberally used in washing.

¶ This combination is especially suitable for leathers of Class

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Stamping.

Glair and Size.

Glair and Fish
Glue combined.

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- II; for stamping half-bound seal grain cowhide or buffing cases it has no equal. In this case it is only necessary to give the leather one coat of the size, and when dry lay on gold, using plenty of oil, especially if very condensed type is used. For cloth, dilute with the necessary amount of water. This size cannot be used for metal stamping.
- Finishing and
Stamping.
—
Glair and Size. [No. 25.] *Le Page's Glue*. This glue, diluted with either vinegar or water and the addition of a few drops of glycerine (or without it), can be used for stamping leather or cloth in gold or metal. It can be used alone or in combination with ordinary fish glue.
- Le Page's Glue. [No. 26.] *Yellow Dextrine*. This substance, too, makes a more or less successful size for stamping in gold or metal. Dissolved in bath, it makes a good mucilage by the addition of acetic acid, and this, diluted with water, renders it suitable for stamping.
- Dextrine. [No. 27.] *White Shellac cut in Grain-Alcohol*. This preparation can be bought at almost any painters' supply store and of some druggists. It is often cut in wood alcohol, but for this purpose it should be cut in pure grain-alcohol. Put seven teaspoonfuls of it into a half-pint cup, add seven teaspoonfuls of aqua ammonia and fill the cup with cold water. You may add a little fish glue diluted with water, if you like, but it is not necessary. It is exclusively a metal size and can be used on leather or cloth. It works well, but requires considerable heat. However, if the die is of brass and the press is heated by gas, there is no cause for complaint. If steam heat is to be used, it should be live steam at a boiler
- Shellac in
Alcohol.

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pressure of from seventy to eighty pounds, and that pressure should be maintained as long as the job is on the press. Steam at a lower pressure than specified would make the work of stamping unreliable. If you cannot get the proper heat for your press, or you are working with electros on cloth, you will do better by using either No. 21 or No. 23.

Finishing and
Stamping.

Do not stamp moist; allow the cases to get reasonably dry after sizing, and if cloth, do not use the size stronger than specified; weaken it, rather, by adding more water. You may find the cloth somewhat dull when it dries out, but do not be alarmed. In laying on, simply pass the oil rag over the surface of the cloth and the latter will very nearly assume its original finish. To repeat, it is a metal size for stamping purposes only.

Glair and Size.

Shellac in
Alcohol.

[No. 28.] *Combination "C." Shellac Size No. 21, Fish Glue and Vinegar.* This combination produces a size of milky appearance, both in color and consistency. It is absolutely an original compound and gives positive results in every instance, whether gold or metal is used, as well as in connection with any wash and filler. It does not stain the most delicate shades of leather or cloth, and is waterproof. It will produce equally good results, whether on paper or leather. White or colored writing and cover paper, cardboard, cloth, buckram or leather (real or artificial) can be stamped in gold or metal and finished or tooled in gold with it. Briefly, this size can be used in all cases where it is desired to produce a dull surface on the material to be stamped or finished, or to preserve it if it already exists. Polishing cannot be done when this size has been used.

Shellac, Fish
Glue and
Vinegar
combined.

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



—
Glair and Size.

Shellac, Fish
Glue and
Vinegar
combined.

Its Preparation: You require two agate-ware dishes (wash-basins do very well). Put two cupfuls of shellac size No. 21 in one of them, and stirring briskly with a folder, add to it three-fourths of a cupful of fish glue No. 23. Into the other dish put one cupful of white vinegar (wine vinegar is preferable) and let this one dish, at least, have a perfect lining, to prevent the vinegar from coming in contact with the iron. Now place both dishes, the one containing shellac and fish glue and the other vinegar, on the stove and bring the contents gradually to the boiling point. Let simmer a few seconds, take both dishes from the stove, and stirring the shellac mixture briskly with a folder, add the hot vinegar gradually to it. The preparation is now completed. When cool, remove the scum—a film forms on the surface, similar to that found on boiled milk—strain through cheese-cloth and bottle. The size will be homogeneous, with not the slightest indication of having curdled. After standing for some time, a slight precipitate may be found, but this will not lessen the effectiveness of the size. Although the color of the size is very pronounced, it dries out perfectly transparent. If used in stamping, it can be diluted with water to suit the nature of the material.

Ooze Sheep, Ooze Persian (India Sheep) and Ooze Calf, sometimes called Art Leather—a practical method of decorating (stamping) it in gold, being an original idea of the author: In this material, as you undoubtedly know, the flesh or wrong side of the skin has been carefully dressed and is now actually the right side. It has a nap very similar to that

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found on blank-book fleshes, only much finer, and is produced in all colors and shades. Ooze calf, being of a much finer texture than ooze sheep, is at the present time extensively used for the binding of books, generally for limp (flexible) covers, but sometimes also for three-quarter bindings, and for half-bound case work. The limp work concerns us mostly in this case, from the fact that it is decorated by machine—stamped. There are two ways of stamping this material in gold, viz.: To stamp directly on the nap of the leather, ordinarily done by the use of gilding powder, but after my improved method, accomplished with size. The other way, a very exhaustive description of which follows herewith, is to press down the nap of the leather in the shape of a label of any size or outline, and to hold the nap down securely by means of a coat of size applied with a camel's-hair brush. Then you would make the gold impression, usually consisting of lettering, and finish up with a border, worked in blind or color foil. This border may consist of a medium fine double line  or a heavy line  about one-sixteenth of an inch thick, and a fine double line  inside of it thus . In the latter case, both lines may be worked in blind, or the outside (heavy) one in color foil and the inside double line in blind. An ornamental border may be substituted for the lines, or a design covering the entire label, except the lettering, may be used—all according to taste and fancy. Zinc etchings, representing bold effects, can be advantageously employed for the blind work. Whichever is used, the outline of it should follow the outline of the sized label, and so cover the size line. Brass dies

Finishing and
Stamping.

—
The stamping of
Ooze leather
with label
effect.

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—
The stamping
of Ooze leather
with label
effect.

are not required for the raising of the label surface. Simply proceed thus: To render the sizing of the label, which in some instances may have quite a large surface, practical and easy, the surface containing the label should be raised from the leather; in other words, pressed out in relief. This can only be accomplished by means of male and female dies. These can be cut out of a good quality of binders' tar board, or, better still, out of English hand-made rope board, with knife and chisel. However, they must not be cut so that they fit exactly into one another, but you should leave about a sixteenth of an inch play between the outlines of both, to allow for the thickness of the leather. The male die must be glued onto the tray (a piece of pasteboard with gauges of the same material, upon which limp covers are fed into the press). The female die is fastened to the head of the press in the following manner: Procure a square piece of sheet brass, a quarter of an inch thick (this is the thickness from which brass dies are cut), however, a thinner piece will answer as well. It should be somewhat larger than the label. Glue it to a die-block, exactly as you would fasten an engraved die, and glue the female die to this. It can be easily registered by fastening the die-block with the brass plate glued to it to the press first, and then picking the female die from the tray, where it has been placed, glued side up, in exact position over the male die. The tray, of course, must be gauged in the machine before the female die is picked from it. In this way the nap of the leather is brought into direct contact with the polished side of the brass plate, producing an even and smooth surface.

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When all this has been carefully done, and the machine is adjusted, the cover can be fed in and the label surface raised or embossed. The press must be just lukewarm and the impression light. A hot press and a too heavy impression are apt to produce dark spots—discoloration of the leather—and this should be avoided.

The embossed surface (the label) is now to be sized, and here again the No. 28 will give surprising results. For sizing, use a flat camel's-hair brush, which must be large enough to admit the covering of the whole label with size in one stroke. The leather is so absorbent that if a small brush is used, requiring more than one stroke, the result will be plainly visible size streaks. If the label is small, you can easily size free-handed, without danger of getting size where it is not wanted; if large and possibly of fancy shape, it will be advisable to cut a piece of zinc for a sizing pattern; this should be an exact duplicate of the female die. This device should be cut large enough to cover the leather to the extent of about two inches all around the label. Lay on the zinc pattern, charge the brush rather liberally with size and draw it slowly with a fine touch across the surface in order that the leather may receive plenty of the liquid. The pattern should now be carefully lifted from the cover and the latter laid aside to dry, but not in the sun.

¶ Some colors require more size than others; black and brown generally require a great deal, to avoid roughing up in the subsequent gilding; grays require less size than any other color. If in the gilding the leather is found to rough up, another coat of the same size can be given, but it is usually

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The stamping of
Ooze leather
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effect.
Size for the
same.

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—
The stamping of
Goze leather
with label
effect.
Size for the
same.

better to go over the leather twice in the first sizing, if there is any fear of roughing up, for applying the second coat after the first is dry is apt to darken the leather. The roughing up may also be met to some extent by giving the label an extra slight nip in the machine, using the latter nearly cold. If this fails to accomplish the desired results, a stronger size must be prepared, thus:

[No. 29.] *Combination "D."* Two cupfuls of shellac No. 21, to which add three-fourths of a cupful of fish glue, consisting of equal parts of Nos. 23 and 25, the latter reduced with glycerine and rose-water to the consistency of the No. 23. Mix well with a folder and add one teaspoonful of refined honey to this glue mixture before it is added to the shellac. ¶ Use three-fourths of a cupful of vinegar instead of one cupful, as in No. 28. Otherwise follow No. 28's directions closely. In this work it is not advisable to use a filler, as it would stiffen and darken the leather; it is far better to do without a filler, and force results by varying the strength and quantity of the size.

When the label has been properly sized, and is dry, the gilding can be done. It matters not whether this work consists of lettering or ornamentation, or both, the process is the same. Proceed as follows: Lay-on with amber (common) vaseline, using it as sparingly as the work will permit. Apply it with a little white cotton-batting, and with the least possible friction. The slight stain left on the sized leather will disappear in a day or so. If too much vaseline has been used, the stain can be removed from the leather with a little gasoline and

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cotton-batting when the stamping is finished. ¶ For gilding, the press should be used fairly hot, and the die allowed to rest on the work a second or so. The surplus gold is to be removed with the rubber, and this must be done carefully, with as little friction as possible. With the stamping of the border, which has already been explained in detail, the work is finished. If rightly done, the label should have the appearance of dull-finished German calf, and look as though it had been inlaid.

Altogether, the cover is neat and well adapted for a table book. The appearance can be further improved by turning the edges of the leather over a zinc pattern, and creasing them neatly, as is customary in fancy leather work. In this case, the leather is to be pared on the right side, *i. e.*, the side having the nap, so that when the work is finished, a narrow rim of smooth leather, little more than an eighth of an inch in width, will show on the outside of the cover. Very small round corners will add to the effect. The books should be silk lined.

Ooze leather is sometimes used for the backs of half-bound case work. If it is desired to produce the label effect on these backs, practically the same directions can be followed, with only one exception, that of raising the label for sizing. Owing to the paper lining and the difference in the work in general, this is not practicable.

A brass plate the exact size of the label has to be procured, and the covers blanked in with it in the ordinary way; then sized with the aid of a zinc pattern, and finished in the order

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—
The stamping
of Ooze leather
with label
effect.

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Stamping.

—
The stamping of
Ooze leather
with the nap
wholly
preserved.

given for limp covers. ¶ The other method, that of applying either a design or lettering in gold directly to the nap of the leather, is much simpler. Fine line effects must be avoided, as they would be partly lost in the nap of the leather.

The principal requisite in connection with this work is the size. This, owing to the nature of the work, must be a special preparation to meet requirements which are essentially rather uncommon. It must be just strong enough to thoroughly fix the gold, preferably at a somewhat high temperature. It must not stain or change the color of the leather, and it must admit the restoring of the nap of the leather after stamping. To render the latter easy, and without injury to the leather, the size must be of the kind that dries out on the surface without penetrating into the fibre of the leather to any great extent. These requirements will be fully met by the following preparation:

[No. 30.] *Combination "E."* One scant, even teaspoonful of the wax solution No. 74, one teaspoonful of Le Page's glue reduced with glycerine and rose-water to the consistency of thick syrup, one generous teaspoonful of Glair No. 19, and fifteen teaspoonfuls of cold water, stirring as the successive ingredients are added.

The process of stamping is, briefly, this: Apply the size with a soft sponge where needed. When dry, lay on gold with a mixture of camphorated vaseline No. 39 and grease No. 40, adding sufficiently of the latter to color the former, and stamp with a fairly hot press, allowing the die or type to rest on the leather a second or so. Clean up with rubber and, if necessary,

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wash with gasoline, to take out the grease spot. When the gasoline has evaporated, restore the nap of the leather with a moderately stiff brush. This may be accomplished with a tooth-brush, or hand- or shoe-brush—according to the extent of the sized surface. It may be necessary to help along a little with a knife between letters, etc.; but if the size was of the right consistency, and the sizing properly done, this will be avoided.

It must be borne in mind that sheep, Persian (India sheep) and calf are not of the same texture, and therefore the size must be adjusted accordingly. It is impossible to establish a fixed consistency of size for the different grades of leather, as the colors influence the work more or less. The stamper must adjust these differences, by varying the amount of water which must be added to the size. The size can be relied upon to produce the desired results. It is past the experimental stage, as the process has been extensively applied by me in edition work. A point of considerable importance in connection with the process, is the laying-on. It is absolutely necessary to use plenty of grease. If this is not done, the work will be uncertain and the results unsatisfactory. The gasoline will remove the stain, and even if it does not quite accomplish this, the stain will not be noticeable after the nap of the leather is restored. Further, a very firm impression with a fairly hot press is necessary, as already stated.

These two processes, which deal exclusively with the decoration of ooze leather, are among my latest achievements. You will note that in compounding a size for any particular grade

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—
The stamping of
Ooze leather
with the nap
wholly
preserved—Size
for same.

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of leather, my principal aim is to fully preserve both the finish and color of the leather without sacrificing that all-important feature, the fixing of the gold or metal. A fair trial of my formulas will convince any intelligent finisher that I have been eminently successful in this direction.

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Stamping.

—
No. 28 and
Glair
combined.

[No. 31.] *Combination "F."* Nos. 28 and 19. This combination in various proportions can be successfully used for stamping and finishing. In proportions of one part of No. 28 to six parts or more of No. 19, it makes a very effective gloss size, while a decrease in the quantity of No. 19 gives a dull size. ¶ This size can be used in connection with any wash and filler.

Powdered
Shellac, Venice
Turpentine
and Fish Glue
combined.

[No. 31a.] *Combination "G."* To two spoonfuls of powdered white (bleached) shellac add a like quantity of Venetian turpentine and ten spoonfuls of pure grain-alcohol; mix thoroughly and let stand till dissolved, from two to five hours. Owing to the volatile nature of the alcohol, this mixture should be kept in a tightly-corked bottle. When dissolved, take half a spoonful of this mixture and add three spoonfuls of Dennison's glue; mix thoroughly, and stir into it about ten spoonfuls of hot water, or, should a slow-drying size be desired, vinegar and water in equal parts and well heated, instead. It is a good metal size. Powdered, bleached shellac can be had of druggists and painters' supply stores.

Orange Shellac
and Fish Glue
combined.

[No. 31b.] *Combination Size "H."* To two spoonfuls of No. 21a add one spoonful of Dennison's glue (No. 18a) and from twelve to sixteen spoonfuls of water; mix thoroughly till it resembles soft rubber, which will require a few minutes' time.

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When this has been accomplished, it is only necessary to add three spoonfuls of aqua ammonia to "cut" it, and it is ready for use. As a size for metal stamping it has many fine qualities.

This completes the list of glairs and sizes for tooling, finishing and stamping. It is needless to say that a great many more combinations can be produced with the ingredients enumerated, but those specified will be found sufficient. In my practice I find it entirely safe to confine myself to the use of the following: For finishing, the Nos. 21, 22 and 28; for stamping, the Nos. 21, 28, 29 and 30.

Finishing and
Stamping.

—
A condensed
list of Sizes and
Glairs.

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OILS AND GREASES FOR LAYING-ON

Finishing and
Stamping.

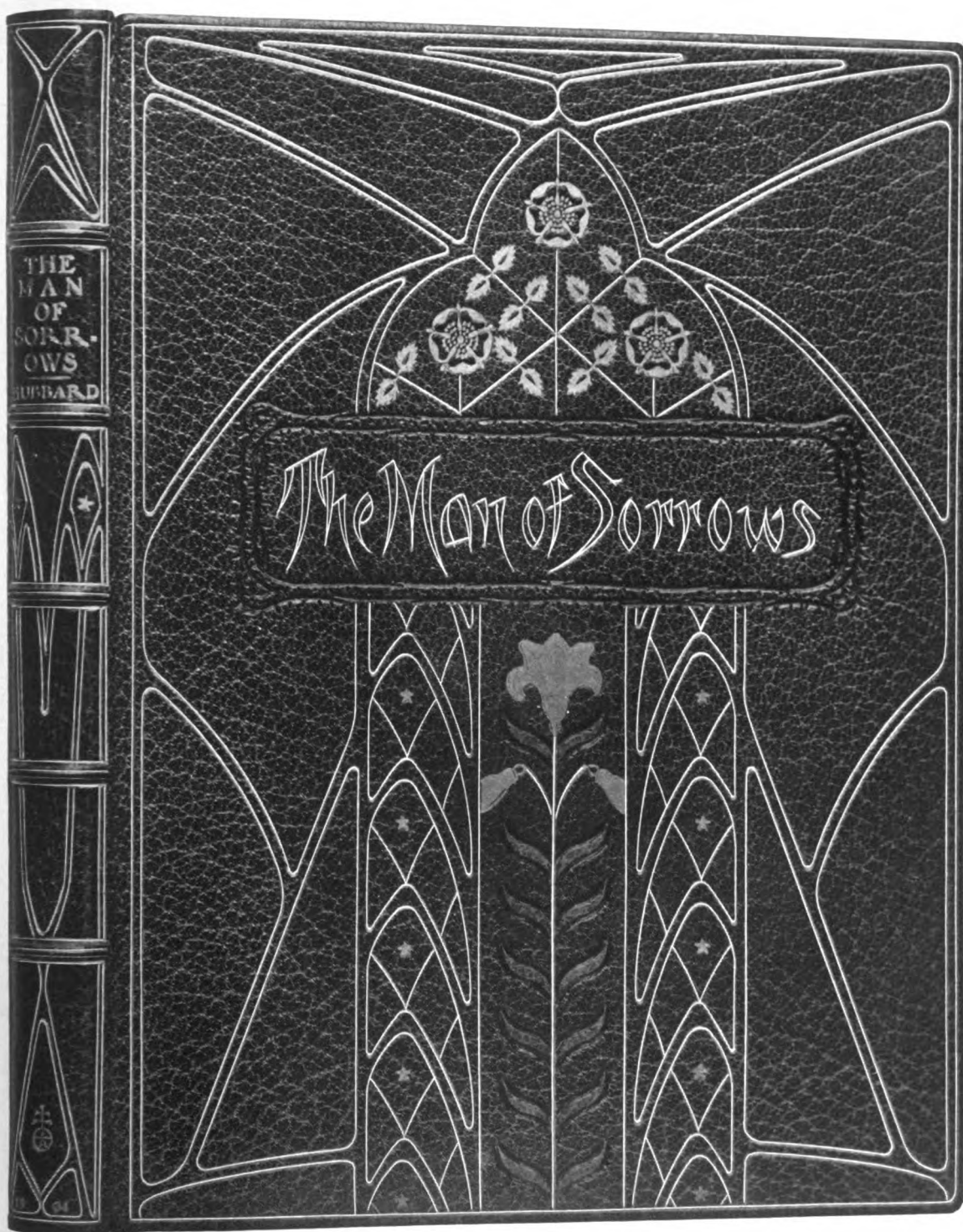
—
Oils and
Greases.

WITH few exceptions, in stamping (press work), it matters very little what kind of oil is used for laying-on. In many cases the stamper could do better work without the use of oil or grease. Still, he must, at any rate, use enough of it to cause the gold leaf to adhere to the work sufficiently to prevent its shifting or getting off entirely, for we all know that it requires but a breath of air to scatter it. By the use of a little oil or grease this trouble is prevented, and the work of handling the cases, after the gold has been laid on, rendered comparatively easy, making rapid feeding of the covers into the press possible.

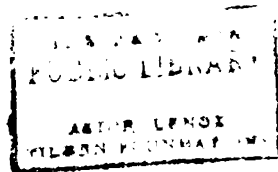
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There are, however, some oils which will positively retard the fixing of the gold; therefore, the use of such for these purposes should be avoided. One of these is chemically pure oil of sweet almonds. It is a limpid, entirely colorless fluid. There are many other oils with the same properties, but it is unnecessary to name them, as they are not serviceable for our purposes. The oils and greases specified in the following list meet every requirement.

From what I have said in regard to laying-on, it will be seen that so far as press work is concerned, very little, if any, importance attaches to this operation. It must not be inferred, however, that the same is true of finishing, although most finishers hold that it is. I emphasize the fact that success in finishing and tooling, whenever laying-on of gold is required, depends solely upon this seemingly unimportant operation—



DESIGNED AND EXECUTED BY L. H. KINDER



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laying-on. It is, indisputably, the secret of success in hand-tooling and lettering. The last two formulas under this heading, Nos. 45 and 46 are unequaled as mediums for laying-on. It does not matter whether glair or size is used, if the gold is laid on with either one of these two compounds, the subsequent tooling will be easy. By their use, small imprints in gold on the turn-in of the leather can be successfully produced without either glair or size, using the tool a little hotter than usual. Not only will a thorough fixing of the gold be effected, but filling-in will also be prevented in all instances where these formulas are employed.

Too much importance has been attached to glair and size. The theory in finishing has ever been thus: If one coat of glair does not fix the gold solidly, two surely will, and if the latter fails, the glair is weak. That this theory is decidedly wrong, you can easily prove to your full satisfaction. Take, for instance, a book bound in one-half Persian morocco, the back to be filleted top and bottom, and across the bands; inside the fillet at the bottom, a heavy flower-roll in gold, lettered with heavy-faced roman type, and the remaining panels to have a center stamp in gold, of a somewhat bold design, to harmonize with the type and character of the book. Prepare the leather any way you wish. The fillets and the flower border you will, of course, work in with the roll. The gold for this purpose is not laid on, but picked up with the roll. All of this work is solid, without a blemish, and it was accomplished with no exertion on your part—something you knew before starting; there was no difficulty on this score.

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It is different, however, with the lettering and the gilt centers. Experience has taught you that on morocco (especially on that variety known as Persian or India sheep, some of which is hard) this work is generally difficult and results are uncertain. Still, you enter upon this work with confidence and hope. You lay-on with the best olive or sweet almond oil, use the proper heat and produce a perfectly even and uniform impression. There is no experimenting so far as these essentials are concerned, for you have been a finisher for years, you have served your apprenticeship in an up-to-date shop, under a good man, and you are simply doing your work to-day the way you were taught to do it. But alas, after removing the surplus gold, you find, in spite of all precautions, that the gold on some of the letters is loose; some parts of the centers are likewise imperfect.

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But why this deficiency—this uncertainty? What is the cause of it all? The average finisher has no inclination to place the responsibility to his own shortcomings. He will, surely, blame the forwarder, the leather, the gold, the tools, or even the weather—or all. Disgusted, he will resort to mending, and fix the work up the best he can. The boss standing the loss of time, and silently asking himself, “Shall I ever build up a reputation for turning out hand-tooled work equal to the best, and at a profit?”

Many years ago, in my father's shop, when I put the first line of lettering on the back of a book, my curiosity was aroused to a high pitch when I noticed that the starting letter was only partly solid. My father tried to console me, and

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said it was due to my uncertain hand, and that with a little practice and experience I would soon overcome the difficulty. So I did, but experiments and persistent study soon convinced me that this defect could be met much more easily by substituting something else for the oil in laying-on, than by a mere training of the hand. The cause of this defect must, beyond doubt, be found in the uncertainty of impression; the remedy is a medium for laying-on which will hold the gold firmly to the leather, and neither evaporate nor dry out in less than ten hours at least. If a suitable medium for gold fixing is united with it, so much the better.

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The experienced finisher is quite capable of doing simple lettering with oil, but there will be instances where it fails, and it will surely fail in elaborate hand-tooling, where it often requires from four to seven hours of steady tooling to finish but one side of a book. Besides, on delicate shades of leather, oil will surely leave a stain which cannot be removed. A grease stain, however, can be erased.

The use of gilding powder for anything but marking (lettering) fancy leather goods, is to be condemned, and even in this work it is advisable that the lettering be penciled in whenever the price to be paid for the work permits. The powder itself is highly objectionable; it will always cling more or less to the leather or the cloth, and thus often discolor it. The use of powder in finishing books means also loss of time. Yet by far the principal objection is that the results are neither solid nor permanent. If you are in the habit of finishing with powder, discontinue this unprofitable and time-wasting prac-

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tice at once. Better and quicker results will be your reward. The oils and greases enumerated below have always given me entire satisfaction. The list follows:

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[No. 32.] *Oil of Sweet Almonds* (commercial). Use only the best-grade, inferior grades soon get rancid. In stamping, apply with a piece of white or unbleached flannel into which a few drops have been rubbed; in finishing, use cotton-batting in place of the flannel. Never use the oil in such quantities as to stain the material, because the stain cannot be removed.

[No. 33.] *Engine Oil*. (Ordinary lubricating machine oil.) This oil is perfectly reliable in all cases where it is desirable to use oil for laying-on. It must be applied in the same way as No. 32.

[¶ No. 34.] *Oil of Olives*, generally known as sweet oil. Use like the No. 32.

Oils. [No. 35.] *Neatsfoot Oil*. It is a liquid tallow and is used by some finishers. I cannot recommend it for laying-on. (It is better suited as a medium for reducing bookbinders' gloss inks in inking cloth cases.) For laying-on apply same as No. 32.

[¶ No. 35a.] *Lard Oil*. A good quality of this oil is a good medium for laying-on, when oil is deemed expedient.

[No. 36.] *Oil of Lemon*. This is a volatile oil which can be used for lettering, and finishing generally, on all delicate shades of leather, if the use of oil is insisted upon. It is, however, very volatile, and for this reason should not be used on jobs which would require more than about thirty minutes' time to finish.

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[No. 37.] *Oil of Sweet Almonds cut with Oil of Lemon.* There are instances in stamping where either almond or olive oil, if used alone, would cause the metal or gold to either fill in considerably or render the removal of the surplus gold or metal rather difficult. This trouble is generally caused by the presence of a peculiar surface-dressing in the material. Some diced buffings and sundry makes of artificial leather, the latter masquerading under some fancy name, like "Keratol," etc., belong to this class. In such cases, the addition of a little oil of lemon or some other good volatile oil to the laying-on oil, will help wonderfully.

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This combination can also be used in finishing.

Rancid oils are not suitable for this purpose, nor should flannel or cotton-batting be used when the oil in them has become rancid, for the fixing of the gold or metal will thereby be retarded.

For stamping very porous leather it is advisable to use grease, especially for colored stock.

[No. 38.] *Amber Vaseline* (common yellow). Admirable for stamping calf, ooze leather, and in fact, any smooth-finished stock of porous quality. Use very sparingly. The slight stain will entirely disappear in a very short time.

Vaseline.

[No. 39.] *Camphorated Vaseline.* Take equal parts (in volume, not in weight) of amber vaseline and gum camphor, place it in a tin dish and melt on stove. This combination possesses the advantage over No. 38, in that the stain disappears much more readily. To be used for stamping like the No. 38.

[No. 40.] *Lard, Tallow, Stearine, and Varnish.* To eight

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Greases.

Lard, Tallow,
Stearine and
Varnish
combined.

How to apply
the Grease.

even teaspoonfuls of lard add sixty drops of bookbinders' varnish (Zinsser's best French Copal Varnish is preferable); mix well and add sixty drops of oil of lemon, thirty drops of oil of olives or sweet almonds, and thirty drops of oil of bergamot. Stir again and set aside. Next, melt in another dish a piece of pure mutton tallow, and in another dish melt a piece of stearine. Take of the still liquid tallow eight teaspoonfuls, and add to it four teaspoonfuls of the liquid stearine; stir the mixture and add it to the above-mentioned lard, etc. Stir well till cool; in warm weather, place the dish in cold water. This will hasten the cooling process.

It is a good medium for laying-on in finishing. The presence of the varnish, however, makes it necessary to use the tools just slightly warm, and with a slow but firm impression. If the tools are used hot, the gold will not hold perfectly. It is especially suitable for smooth-finished leather.

Directions for using: Put a little of the grease on a piece of white cardboard, work it with a folder till quite soft, and apply it with a piece of white cotton-batting. Shape the latter into a little ball and take the grease up with it, just as you would charge a dauber with shoe-blackening. Rub it into the leather, not using the grease too sparingly, and lay on gold. For the sides of the book, the gold is best taken up with a chamois tip; for backs, cotton-batting is better suited. Of the latter take sufficient to make a ball the size of your fist; shape it so it will have a flat side sufficiently large enough to accommodate half a sheet of gold. When the gold has been laid on, press it firmly to the leather with a small bunch of bat-

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ting. Mend all pin-holes and breaks, if there are any. When this has been carefully done, the book is ready for tooling. After the tooling has been completed, take a piece of unbleached flannel and rub off as much as possible of the surplus gold. Take care not to cause too much friction. Now go over the leather with benzole, or any one of the cleaners specified under that heading, applying it with a small bunch of white cotton-batting. After this, put the book aside for from ten to fifteen minutes. The book should now be cleaned up with the rubber and polished, if it is desired.

The grease is non-drying and will hold the gold firmly to the leather for a number of hours, while the tooling is done.

[No. 41.] *Varnish made from Gilding Powder.* You can make the varnish called for in the formula, by simply adding two parts of pure grain-alcohol to one part of good white gilding powder, preferably Zinsser's (the parts to be measured by volume, not by weight). For instance: To one even teaspoonful of powder, add two teaspoonfuls of alcohol. Place the ingredients into a bottle, cork well, and let stand till dissolved and clear. Occasional shaking will hasten the process of dissolving. When clear, pour off, and throw away the dark sediment. This preparation can likewise be used for general varnishing purposes.

[No. 42.] *Lard, Tallow, Stearine and White of Egg with Lemon Juice.* Put into a small china bowl (just large enough to admit the use of an egg-beater) five teaspoonfuls of white of egg (one good-sized egg contains this quantity), five teaspoonfuls of lemon juice, sixty drops of oil of lemon, thirty

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Gilding Powder
Varnish.

Lard, Tallow,
Stearine and
White of Egg
combined.

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—
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Lard, Tallow,
Stearine and
White of Egg
combined.

drops of oil of sweet almonds and thirty drops of oil of bergamot. Beat it well with an egg-beater, strain through a piece of coarse cloth (cheese cloth will do) into another bowl or cup (never a tin dish) and thicken in water bath. The mixture must be constantly stirred with a folder (not a knife) while in the bath, to prevent the forming of lumps, and the water in the bath should be kept at the boiling point. This preparation will thicken to the consistency of jelly; it will then get no thicker, even if kept in the bath all day, so as soon as it has reached this consistency, it can be taken out of the bath. Now add to it eight even teaspoonfuls of lard, mix well and stir it into the twelve teaspoonfuls of melted mutton tallow and stearine, called for in No. 40 (eight of tallow and four of stearine). Stir well till cool and keep in a half-pint glass jar with a tight-fitting top. It will eventually turn mouldy, in which state it does not work well. To prevent moulding, use good cider or wine vinegar in place of lemon juice; however, the preparation works somewhat better if the lemon juice is used.

This compound is to be used on all smooth-finished leather and crushed levant. For directions of application see No. 40. Its advantage over the No. 40 lies in the fact that the tools can be used quite hot. For small imprints this preparation can be successfully used without size or glair. It can also be used for stamping law book titles, without size or glair. It is, in fact, a most excellent preparation and worth its weight in gold to the finisher. Artistic tooling in crushed levant, if washed with the No. 7, filled with No. 16, sized with No. 22,

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and laid on with either No. 42, 44 or 45, using double gold, becomes ridiculously easy. The gold will hold, regardless of steadiness of impression or dryness of leather. To follow these directions means success in artistic tooling.

[No. 43.] *Combination "I." Combining No. 40 with No. 42.* The two compounds may be combined in any proportion by simply mixing them cold in their finished state. They must not be melted for the purpose of mixing, nor after mixing, as in so doing the varnish would coagulate the white of egg.

The combination offers no particular advantage, except perhaps that it will prevent the filling-in a little better than if No. 42 were used alone. Still, filling-in, in either case, would be very slight, indeed.

[No. 44.] *Combination "J." No. 42 and Vaseline.* To render the No. 42 suitable for grained leather, it is necessary to mix a little vaseline with it; without the latter it would be difficult to entirely remove the hard, white grease from between the grain of the leather. But the vaseline must be the best amber jelly procurable. White vaseline is entirely unsuitable. I use a brand called "Kalita," which gives me very satisfactory results. About one part of vaseline to from 12 to 18 parts of No. 42 would be a good combination. All that is necessary is to work the vaseline well into the other, which is easily accomplished with a folder. This combination can also be used on smooth-finished leather.

[No. 45.] *Combination "K." No. 42 and Palm Oil.* A little palm oil mixed with the No. 42, just enough to color and soften the latter, has a good effect in finishing crushed levant.

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Stamping.

—
Oils and
Greases.

Some
combinations.

FORMULAS FOR BOOKBINDERS

[No. 46.] *Combination "L."* No. 42, *Palm Oil and Vaseline.*
For this combination, mix equal parts of amber vaseline and palm oil and add to the No. 42 in the same proportions as given for No. 44. It is suitable for all kinds of leather.
This concludes my list of oils and greases. They are unexcelled in effectiveness.

Finishing and
Stamping.

FORMULAS FOR BOOKBINDERS

GREASE REMOVERS

PRODUCTS obtained by distillation of coal tar, or of petroleum, such as gasoline, benzole, etc., are suitable for this purpose. Sulphuric ether removes grease, but has a tendency to dull the gold, therefore it should not be employed for cleaning up gold-tooled work. Use one of the following:

[No. 47.] *Gasoline.*

[No. 48.] *Benzine.*

[No. 49.] *Benzole.*

[No. 50.] *Petroleum Ether.*

[No. 51.] *Cumole.*

The commercial brands of these liquids may be used; the chemically pure article, however, will give better results.

As the great number of recipes serving the same purpose may confuse you, I will enumerate those formulas to the use of which you may safely confine yourself in finishing and stamping:

Nos. 1, 2, 3, 7, 7a, 8, 11, 16, 21, 22, 28, 29, 30, 33, 37, 38, 39, 46, 47 and 49.

With a small stock of these on hand, you will be amply prepared for any emergency that may arise.

A FEW WORDS ABOUT STAMPING

A few words about stamping may not be amiss. Some stampers meet with difficulties in stamping large surfaces solid in gold. As a rule, the gold fails to hold all over. The following

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Finishing and
Stamping.

Grease
Removers.

A condensed
list of Formulas
for Finishing
and Stamping.

Stamping large
surfaces in gold.

FORMULAS FOR BOOKBINDERS

Finishing and
Stamping.

—
To stamp large
surfaces solid
in gold.

directions, if carefully applied will be found a good remedy: Size the leather or cloth with either No. 21 or 28, properly diluted with water; when dry, lay-on with No. 42, using the grease very sparingly. In place of No. 42, the other combinations, Nos. 43, 45 or 46, may be used with equally good results. Use the press rather hot, give firm impression and allow the die to rest on the work a second or so. Above all, see that the die is exactly in the center of the head of the press and that the bed is thoroughly rigid.

The stamping
with Electros—
how to preserve
the latter.

When working with electros on cloth, in gold, and No. 19 or 20, properly diluted, is used for glair, the electros will be better preserved and last longer if the stamping is done somewhat moist, and consequently with little heat. Glair from fifty to one hundred cases, according to the amount of laying-on, and when about half of these have been stamped, glair another batch like at first, stamp part of them, then glair another lot, and so on. This scheme will regulate the work so that the cases will always possess the same moisture when getting stamped. However, if the No. 21 is used for sizing, this process cannot be employed. In this case the covers can only be stamped dry, but this size does not require any more heat when stamped dry than does albumen glair stamped moist. I prefer the No. 21; yet as some stampers may insist upon using the 19 or 20, it is for their benefit that I make the above suggestions.

FORMULAS FOR BOOKBINDERS

THE STAMPING OF SILK (BADGES, ETC.)

I HAVE, at different times, stamped small lots of silk badges and hat labels in gold, white (aluminum) and yellow metal, and have in all instances met with success. However, not having followed this line as a specialty, I offer the following formulas merely in the form of good suggestions.

Finishing and
Stamping.

Stamping of Silk
(Badges, etc.)

THE WET PROCESS

[No. 52.] For this process, put into a small china bowl, just large enough to admit the use of an egg-beater, five teaspoonfuls of white of egg, three teaspoonfuls of water, fifteen drops of grain-alcohol, twenty-five drops of oil of wintergreen and twenty-five drops of oil of lemon. Beat the mixture fairly well with an egg-beater, let stand over night, remove scum in the morning, strain through a piece of coarse cloth and apply as follows: With a small, soft sponge size five badges just sufficient to impart an even color to the silk. Spread them out on a sheet of pasteboard. Now take the one sized first, lay on metal (a laying-on medium is not required), give a light impression, resting a second on the ribbon, with the press just hot enough to sizzle, and clean away the surplus gold with a soft sponge, which should be moistened with a little clean water. For gold, add seven or eight teaspoonfuls of water instead of three when preparing the size. Just before the ribbon is entirely dry, after the stamping and cleaning has been done, draw the badges through your fingers a few times. This little operation will greatly add to the beauty of the finished work,

The Wet
Process.

FORMULAS FOR BOOKBINDERS

Finishing and
Stamping.
——
Stamping of Silk
(Badges, etc.)

as it has a tendency to restore the ribbon to its natural appearance. Whenever the ribbon is of good quality and heavy, this process works satisfactorily. I have often employed it for small runs and always with success, even when using old English type and script. But the work must be watched very closely; proper heat and the right moisture in the ribbon are here the guides to success.

THE DRY PROCESSES

The Dry
Processes.

- [No. 53.] Size the ribbon with the No. 52 and when it is dry, lay on with either the 42 or 46, using the grease rather freely. If aluminum is used, it will be advisable not to press it down in laying on; better lay it on loose, and after stamping, remove the surplus metal with a tooth-brush, but by all means avoid rubbing it into the silk. If yellow metal or gold is used, lay on in the usual way, stamp and remove surplus with flannel or cotton-batting. Wash with No. 47 or 49 and when dry clean carefully with rubber. This process requires a rather hot press and slow but firm impression, but it will be successful.
- [No. 54.] *Orange Shellac Varnish with No. 40.* Prepare the No. 40 as directed under its own heading, but substitute from one hundred to one hundred and fifty drops of orange shellac varnish for the bookbinders' alcohol varnish (orange shellac varnish is used by cabinet makers). Lay on with this preparation and stamp with rather moderate heat. Remove surplus gold or metal, wash and clean as directed in No. 53. For gold, the original No. 40 will be strong enough.
- [No. 55.] *Orange Shellac Varnish with No. 39.* Mix five parts

FORMULAS FOR BOOKBINDERS

of No. 39 with one part of orange shellac varnish (parts by measure, not weight). To be applied the same as No. 54.

[No. 56.] *Orange Shellac Varnish with No. 51.* To one part of orange shellac varnish add from four to ten parts of No. 51. Keep in a tightly-corked bottle and shake well before using. Apply it with a sponge or cotton-batting and then lay aside the ribbons to dry. Let them lay over night if convenient. Lay on without using any medium, and stamp with moderate heat. Remove surplus metal with a tooth-brush, and the work is finished. If desired, you may lay on with No. 39 or 46. But if you do this, it will be necessary to remove the grease stain with either 47 or 49 after stamping.

This formula works pretty well, but the right proportions of varnish and No. 51 are essential to success, especially in this instance. The proportions must be varied according to the color and the weight of the silk. The fact as to whether metal or gold is to be used must also be considered, the latter requiring much less varnish than the former. Finally, the press must be used just lukewarm.

I am confident that with a little practice you will obtain better results in silk stamping by the use of these formulas than you have ever experienced by using the numerous sizings sold by the regular dealers, generally warranted to give satisfaction, but ———?

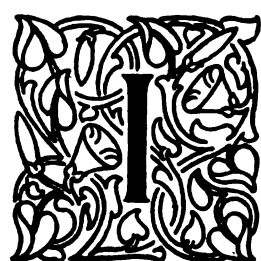
Finishing and
Stamping.

Stamping of Silk
(Badges, etc.)

The Dry
Processes.

PART TWO
EDGE GILDING AND METAL EDGES

EDGE GILDING AND METAL EDGES



I WILL give a brief general description of edge gilding before proceeding with the formulas. Books printed on soft paper and job work in general should be "filled," *i. e.*, the edges of the leaves should be hardened (sized) after trimming and allowed to dry before the books are placed in the gilding press. For, to do good gilding, you need a hard foundation to work upon, a foundation as hard as stone; at least, "the harder the better." If this hardness is not already present in the paper to be gilded, it must be supplied, and this is done by filling, as above referred to. Good writing and linen paper, well sized, do not require filling, but all printing paper, including surface-coated stock, should be filled, to insure good results.

A prevailing idea with reference to the gilding of soft paper must be most severely criticised. It is the idea often held by brothers of the craft not wholly familiar with the fine points involved, that this deficiency can be met by using a much stronger size in the laying-on of the gold. This supposition is absurd and entirely wrong. Surely, the white of an egg diluted with water in any proportion, is not a substance likely to make blotting paper as hard as stone. And even if it were, albumen size stronger in proportion than one egg to a half-pint of water cannot be used for laying-on, as it would make

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Edge Gilding
and Metal Edges.

A brief
description
of Edge Gilding.

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Edge Gilding
and Metal Edges.

A brief
description
of Edge Gilding.

good burnishing impossible. Gold-leaf laid on with strong size will not burnish well; so, soft paper, to be properly gilded, requires a filler, and it should be applied before the books are put in press. Stack the books as you would for red-edging. Be sure and give the paper as much filler, using No. 57, as it will possibly absorb and put your books into the press only when the edges are thoroughly dry; otherwise the leaves will stick. Do not scrape the edges any more than is absolutely necessary. Some paper is extremely difficult to scrape; this may be overcome somewhat by simply dampening the edge with a sponge and clean water just before scraping, but while this practice has a rather beneficial effect on the scraping, the edges so treated will generally stick; hence, I cannot recommend it. Still, a great deal depends on the paper. For instance, it may be applied to writing paper with absolute safety. Edge-scrappers can be bought of any dealer in bookbinders' supplies, or you can have them made. Saw-blades make good scrapers. If you are the possessor of an old "Diston" handsaw, and edge-scraping is of more interest to you than sawing wood, let some machinist cut up the blade for you into round scrapers, say two and one-half inches in diameter, and you will have scrapers that will hold their edges better than the ones you buy, and you will have a good supply of them at the same time. Any cabinet-maker can show you how to sharpen and use a scraper.

When the edge has been scraped perfectly smooth, apply a coat of filler No. 58 or thin paste-wash of the consistency of molasses. Whichever you use, and it is really optional, apply

FORMULAS FOR BOOKBINDERS

it sparingly, and immediately, before the edge has had time to absorb all of the filler or paste-wash, rub down with a ball made of tissue paper, till the edge is perfectly dry and glossy. These directions, as far as they refer to the second filler, apply solely to printing paper, exclusive of the surface-coated variety. Writing papers do not require any filler whatever. Of late years, surface-coated papers have been extensively used in printing, on account of half-tone illustrations; they must be filled after trimming (before putting the books in the gilding press) with No. 57. But they must positively not receive any further filling. To repeat: The second filler, whether No. 58 or paste-wash, must be omitted in gilding surface-coated papers, to prevent the dragging of the gold in burnishing. In the gilding of these papers the bole preparation follows the scraping of the edge, whereas, in case of other kinds of printing paper it follows the application of the second filler, be it No. 58 or paste-wash.

Edge Gilding
and Metal Edges.

A brief
description
of Edge Gilding.

For bole preparation see Nos. 59 and 60. Whichever is used, apply it to the edge with a soft sponge, avoiding, as far as practicable, going over the same place twice. The sponge should be washed in clean water every two or three hours, and always at the end of the day's work or the finishing of the job. In fact, all the brushes and sponges should then be properly cleansed and put away, and not left over night in cups and bowls containing preparations of all kinds. When dry, give the edge a good brisk brushing with a hand-brush, such as can be bought at any drug-store, or, for that matter, a shoe-brush will do.

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Edge Gilding
and Metal Edges.

A brief
description
of Edge Gilding.

The edge is now ready for the gold. Lay on with either No. 61, 62 or 63, as follows: Pour out into a cup only sufficient glair for the day's work, or for the job if less than a day's work (never return to the bowl size that has been used). Apply it with a flat camel's-hair brush from one to two inches wide; avoid air-bubbles in sizing, and do not go over the same place half a dozen times, for if you do, you will soften the bole and soil your size. A practical gilder will use the same cup all day, yet in the evening his size will be nearly as clear as if just taken from the bowl. Here, as in other work, cleanliness is a sure road to success. Immediately after the first coat of size has been given, get your gold ready and lay on with the second coat. A tip made of black silk crepe, just large enough to permit of taking up a whole leaf of gold, will be found a handy contrivance for this purpose. Be quick in laying on, as it is essential to have the whole edge dry out evenly at nearly the same time.

For the benefit of the uninitiated, I will describe the operation as clearly as language will permit. We will say the edge requires a leaf of gold across—in other words, the book or books between the gilding boards equal three inches in thickness. Pick up a sheet of gold with tip and hold it in your left hand, while with your right hand, beginning at the left, size a space of the edge a trifle larger than the sheet of gold. Take care that the size is evenly applied, and remove air-bubbles, if any, by simply working them onto the gilding boards with the size brush. Then quickly lower the tip with the sheet of gold upon it to within about half an inch of the edge; raise

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slightly the end of the tip nearest you, and lower the opposite end till it barely touches the edge. Now quickly give a light breath; the size will then attract and draw the sheet of gold from the tip in much less time than it takes to say it, but it requires some practice to accomplish this trick in such a way that the sheet of gold will be left whole and not torn. It is well for the beginner to have a few strips of gold on his cushion, so that in case a sheet should break in laying on, he can mend it without re-sizing, by quickly applying a strip to the break, with the tip, of course. But you must be quick at it; the patch must be applied before the size has had a chance to dry, otherwise it will rub off. A patch so applied will positively leave no mark of any kind on the edge after burnishing. The first sheet of gold is now on. Proceed with the rest of the gold in exactly the same manner till the whole edge is covered, *i. e.*, pick up gold, size and lay on. In sizing for the second and successive sheets, take care and size exactly from the edge of the last sheet laid on; if you run the size over any of the sheet, you will plainly notice the lapse in the burnished surface, and this will certainly not add to the attractiveness of the job. It is now ready for burnishing.

How soon after laying on may edges be burnished? The drying of the gold is influenced to such an extent by, firstly, the weather; secondly, the temperature of the room where the gilding is done; thirdly, the quality of the paper; and fourthly, by the amount of size used in laying on, that it is well-nigh impossible to fix a scale of time which would satisfactorily meet these ever-varying conditions. To the novice, the following

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Edge Gilding
and Metal Edges.

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Edge Gilding.

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Edge Gilding
and Metal Edges.

A brief
description of
Edge Gilding.

simple advice may serve to guide him safely in this respect, until by long practice and experience he has acquired the ability to know at a glance the conditions of the edge: Breathe heavily on the surface, and if the breath is noticed to disappear rather quickly, in long streaks towards the last, it will be about dry enough to commence rubbing down. The time required for drying may be five minutes, and it may take half an hour or more. The rubbing-down process always precedes the actual burnishing and is accomplished thus: Take either a piece of writing paper, any color, or smooth manila wrapping paper, about five inches square, and wax one side of it slightly; roll the paper, the waxed side in, so that in burnishing, or rather rubbing down, the paper will follow the burnisher, instead of laying flat on the edge. With this paper and a flat, polished agate, slightly rounded on its surface, you do the rubbing down. Proceed as you would in burnishing, except that you keep the paper between the agate and the edge, the waxed side of it being in contact with the agate. Do not neglect to wax the side of the paper to which you apply the burnisher; it will cause the agate to glide over the paper easily and without altering the position of the latter. Do not begin the burnishing at the very end of the edge; the ends being generally somewhat loose, the gold at these points requires more time to dry. It is not advisable to apply much pressure to the burnisher at these points. After the edge has thus been carefully treated, it is ready to burnish.

Old treatises on this subject tell us that in order to produce a suitable lustre, it should be burnished while considerable

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moisture remains in the paper. I consider this theory entirely erroneous, and often responsible for poor work. A satisfactory lustre will be apparent in the press, but when taken out, the edge will be found to stick, and in case of coated paper it will simply be ruined. My theory is this: Rub down a little moist, then burnish when it is nearly dry, and depend on the bloodstone for lustre. The lustre so produced will remain, because the leaves will not stick.

Edge Gilding
and Metal Edges.

Burnish as follows, when sufficiently dry: Rub with a piece of soft silk cloth (china silk), to which a little beeswax has been applied. For convenience sake the silk may be shaped into a ball stuffed with cotton. Some prefer a piece of soft, bark-tanned sheep or calf, but either will do. The waxing is easily accomplished: Rub a little beeswax (preferably white) on one cheek of the gilding press, then lightly rub over the place with the stuffed ball, until the latter presents a polished surface. Too much wax will ruin the work entirely. When thus carefully waxed and every particle of loose gold removed, burnish once over with a flat and reasonably sharp bloodstone burnisher. Do not apply pressure to the bloodstone, for, if the latter is as sharp as it should be, it would be liable to scrape the gold. With the bloodstone you intend to bring out the full lustre, and when this has been accomplished, wax once more rather lightly, and burnish over with the flat and highly-polished agate. Apply considerable pressure to this burnisher, and with a firm and steady movement, work the stone vigorously back and forth, beginning at either edge, with close strokes, until the whole surface has been traversed. The work

A brief
description
of Edge Gilding.

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is now practically finished and the edge should possess a fine lustre and high polish.

Edge Gilding
and Metal Edges.

—
A brief
description
of Edge Gilding.

Should any pin-holes now be visible, they may be mended by applying a drop of alcohol to the defective spot, which must be followed by a piece of gold much larger than seems necessary, as the alcohol will spread considerably; the latter you may apply with a small camel's-hair pencil. This whole operation must be performed very quickly or it will not prove successful, as the alcohol is rapidly absorbed by the paper. You may, of course substitute gilding size for alcohol, but the result will not be so satisfactory. Ether may also be used for this purpose. However, experience has taught me that if a really good, clean edge is desired, it is best, by far, to substitute a second layer of gold for the mending, wherever the latter seems advisable or, rather, unavoidable. The second layer should be applied in exactly the same manner as the first, with gilding size, and burnished in the usual way.

SUPPLEMENTARY REMARKS ON GILDING

Remarks on
Edge Gilding.

In gilding cheap work, especially where it is thin books, either printed or memorandum, it is not necessary to insert gilding boards between the books, to divide them into layers that correspond to the width of the gold; you may simply place a board at each end of the pile, cover the whole with gold, and in burnishing, simply draw the bloodstone toward you across the edge instead of applying the usual back-and-forward movement, as the stroke would be too long.

To improve the lustre, a little plumbago (black lead) may be

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applied to the edge, after it has been burnished with the bloodstone and just before the last burnishing with the polished agate. For this purpose rub a little plumbago into a soft piece of flannel and with it go lightly over the edge. Care must be taken not to use too much black lead, for in that case a silvery hue will be imparted.

Edge Gilding
and Metal Edges.

You have undoubtedly noticed the extremely rich effect of French edge-gilding and finishing, which, in my opinion, is largely due to the very effective shade of the gold-leaf used. After numerous experiments, Messrs. T. Swift & Son, of Rochester, N. Y., have produced a leaf which very closely approaches the French leaf in color. They call it the "Roycroft Shade." I use it exclusively for all kinds of work, and find it very satisfactory. It imparts that appearance of solidity for which the French work is noted the world over.

Remarks on Edge
Gilding.

You need but two burnishers, an agate and a bloodstone, both flat. The latter must be sharpened from time to time, as the stone is rather soft and wears down readily. Let the face of it be perfectly square, and you will have two burnishing surfaces. If you are in possession of a first-class bloodstone burnisher, you are fortunate. For the benefit of those who do not know, let me say that perhaps not one in fifty of these stones are of just the correct hardness and texture. As a rule they are either too soft or too hard and brittle. Sometimes, too, a stone has flaws and breaks at the first grinding. There is no remedy for this defect—you must buy another. The investment of money for bloodstone burnishers is like buying a razor—it is a lottery with odds not in your favor.

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The silk crepe for laying-on tips must be of the stiff variety, used for trimming ladies' hats. You can purchase it in any millinery store.

Edge Gilding
and Metal Edges.

Few novices are careful to observe two important particulars: the right age of the size, and the proper amount of acid to be added, and then they wonder why the gold did not adhere all over, or, if it did, why it looks porous (full of very small holes) and shows the bole so plainly. Sometimes the gold will refuse to stick at the joint line, *i. e.*, where the sheets have been joined, and a narrow streak is apparent, a sixty-fourth of an inch, or broader, across the edge, without gold. Such defects are caused by using the laying-on size too fresh. The size should be at least from three to six days old before it is used. Whatever acid is mixed with the size, add just a sufficient quantity to impart to the size a slightly sour taste. Only in cases of extreme necessity should size be used as early as the second day after it has been made. Nos. 63 and 63a are the only exceptions to this rule.

Remarks on
Edge Gilding.

Another difficulty often encountered, but easily averted, is the rubbing off of some of the gold on books which contain photogravures printed on heavy bristol or card-board. As these inserts are of softer paper than the rest of the book, they will absorb considerably more size and swell, forming a series of ridges along the surface of the edge, raising the gold, so to speak, between these ridges, and preventing it from adhering to those parts of the edge forming the grooves. It is here that the gold rubs off. To prevent this, it is only necessary to rub the edge down while there is still considerable moisture in it.

FORMULAS FOR BOOKBINDERS

You understand what is meant by rubbing down, namely, to burnish the edge with the flat agate, keeping a piece of smooth bond paper between the latter and the edge, as already explained elsewhere. In rubbing down apply considerable pressure on the agate. When this has been properly done, let the edge stand till dry enough for the bloodstone, then finish up as any ordinary edge.

Edge Gilding
and Metal Edges.

To treat round corners in gilding, is very simple, but when applied to job work it means a waste of gilding boards. The process: Gild the front edge first, including one half of each of the two corners, then gild top and bottom, and include the other halves of the corners. The gilding boards must be cut out to conform to the shape of the round corners. This is easily accomplished by means of a carpenters' gouge or a sharp-pointed knife, after the books are in the press.

Remarks on Edge
Gilding.

In gilding the top and bottom edges of books that have been backed, the gold is apt to break along the edge of the back, especially if the book is thick and was backed rather loosely. To keep the gold whole, it is only necessary to apply a little bookbinders' varnish to that part of the edge which is affected by the backing. It may be done before or after the book has been placed in the press. The varnish should not cover a strip any more than an eighth of an inch in width.

FORMULAS

[No. 57.] *Varnish Filler*. Put into a one-gallon crock or china bowl two and a half cupfuls of gilders' whiting, half a cupful of powdered French chalk and half a cupful of acetate of

Varnish Filler.

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Edge Gilding
and Metal Edges.

alumina (in powdered form). Mix all these well with a wooden stick, stir into it gradually three cupfuls of pure grain-alcohol, and lastly, one cupful of boiling water. Now put into an agate-ware dish three cupfuls of No. 21, add to it two whole tablets of No. 13 (see page 14), put on stove and bring very gradually to the boiling point. Stir this liquid with a stick until the No. 13 is dissolved, and add it very slowly to the mixture in the crock, stirring the latter briskly while adding the former, to prevent curdling. To this preparation add four cupfuls of best bookbinders' alcohol varnish, cut with aqua ammonia, prepared as follows: Fill a large cup two-thirds full of varnish (Zinsser's bookbinders' Copal Varnish preferable) and fill the cup with commercial aqua ammonia. Repeat this dose four times and the mixture will be ready. Do not use the household ammonia—it is too weak—nor the concentrated, which is too strong. This finishes the preparation of the filler. It must be kept well corked to prevent evaporation. Shake it well before using, as the whiting settles readily. It is advisable to stir the filler well when bottling, to avoid getting most of the whiting and chalk into the last bottle, since these two articles precipitate very quickly.

Varnish Filler.

To use this filler, give the paper all it will possibly absorb. Be sure to hold the books very tightly, to prevent "running in" too far. You will find this filler a real boon in gilding; used on surface-coated paper, it will entirely prevent sticking of the leaves, but do not put the "filled" books in the press when the filler on them is not dry and hard. The acetate of alumina may be omitted.

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[No. 57a.] *Entire Varnish Filler*. Zinsser's or any other good bookbinders' copal varnish, diluted with alcohol (grain or wood) in proportion of one part of varnish to every three parts of alcohol, makes a fairly good filler, suitable for emergencies. However, it possesses some properties which would render its general use objectionable. Some of these are: Its cost, which is considerable; it is very apt to drag more or less in burnishing; it will leave a plainly visible size line on some papers, and the finished edges do not retain their brilliancy very long.

Edge Gilding
and Metal Edges.

Fillers.

[No. 58.] *Soap and Glue Filler*. Cut two whole pieces of No. 13, put them into a quart china bowl, add one-third of a cupful of hot water (not boiling hot), and dissolve in bath. Heat up one-third of a cupful of No. 21, using an agate-ware dish for this purpose, and add it to the gelatine. Both solutions must be very hot. Next add one cupful of glue stock (see page 72); one and one-half teaspoonfuls of powdered French chalk; two and one-half teaspoonfuls of gilders' whiting. When you have these ingredients mixed well with a folder, add one cupful of cold water.

Soap and Glue
Filler.

Bottle and shake well before using. In cold weather this filler will of course thicken, and then it must be warmed before it can be used, by placing the bottle in hot water for a few minutes.

This filler, though good, is not nearly so effective as No. 57. It is rather better suited for filling after scraping. It must not be used on surface-coated and writing papers, as its use on these papers would cause the gold to drag in burnishing.

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HOW TO PREPARE GLUE STOCK

Edge Gilding
and Metal Edges.

—
Fillers.

Soap and Glue
Filler.

To two ounces of good ground glue (cabinet-makers' glue is preferable) add one teaspoonful of carbolic acid, one teaspoonful of salicylic acid and one quart of boiling water. Dissolve in bath and add two and one-half ounces of white castile soap cut into very small pieces, or, better yet, scraped with a knife. Stir occasionally, and when the soap has been quite dissolved, add one and one-quarter ounces of powdered alum. The addition of the powdered alum will at once turn the solution milky white. This preparation, put into an earthen crock and covered, will keep. Cabinet-makers' glue usually comes in small, broken pieces (flakes). If in this state, it will be better to add the quart of water, let stand over night, add the acids in the morning, dissolve in bath and proceed as above.

BOLE (RED CHALK) PREPARATIONS

EXPERIENCE has taught us that just before laying on, a little color on the edge to be gilded will heighten the brilliancy of the finished edge. Red Armenian bole (there is a yellow variety, but it is not very suitable for this purpose) was found to be peculiarly adapted to the purpose, because of its brick-red color and talcum-like properties, which makes burnishing easy and aids considerably in producing a good lustre. But there are many grades of this material in the market, ranging in quality from the finest of talcum powder to some which is little better than sand. You can buy it both in powder and in lumps; I prefer the powdered. Take a little of the bole between the ends of the fingers and rub it; if it feels perfectly smooth and leaves the tips of your fingers shiny, the article is good. It is not necessary to place your orders for it with some large out-of-town house, in expectation of getting the best. The best bole I ever used I bought in a retail drug-store in Buffalo. I bought all the man had, about four ounces, and asked him to order some more of the same quality, but so far he has not been able to replace that stock. The article is usually called red chalk, and most gilders know it by that term only.

[No. 59.] *How to prepare it for gilding.* Put three or four teaspoonfuls of bole into a cup and add from five to ten drops of beechwood creosote; mix with hot water to a stiff paste and add a teaspoonful of flour paste. Mix well, working out all lumps and add sufficient hot water to make about three-

Edge Gilding
and Metal Edges.

Bole
Preparations.

Bole with Paste.

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quarters of a cupful. Now let stand a few minutes and then carefully pour off into a clean cup, without disturbing the useless bole sediment.

Edge Gilding
and Metal Edges.

Bole
Preparations.

Bole and
Plumbago
combined.

[No. 60.] *Bole, Plumbago (Black Lead) and Gelatine.* Plumbago (black lead) possesses burnishing properties in high degree, but its color, being black, causes edges to assume a rather silvery hue, when it is used exclusively. But why not mix a small portion of it with the bole? Unfortunately, black lead is insoluble in water; it will simply collect on the surface; however, I have overcome that difficulty, making it possible to combine them perfectly, thus giving a preparation possessing all the good qualities of both and so well bound that the bole will neither rub nor drag in burnishing. Cut into small pieces two whole tablets of gelatine (see No. 13), place in a half-pint cup and fill with cold water to within about a half inch of top. Let stand over night, preferably two days, then dissolve thoroughly in bath. While the gelatine is heating, put into another half-pint cup three heaping teaspoonfuls of powdered bole, and one generous even teaspoonful of plumbago, mix well with a folder and add to it of the now hot gelatine solution only sufficient to form a very stiff paste. Stir this paste until it is perfectly smooth, but do it as quickly as possible, and add to it from three to four teaspoonfuls of pure grain-alcohol. Stir again. The mixture should now be of the consistency of thin paste. Add what remains of the gelatine solution, stir well, let stand a couple of minutes and then carefully pour off into a clean cup, without disturbing the useless bole sediment. The preparation is now ready, but it is

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not advisable to apply it while still hot. In cold weather it thickens somewhat and has to be dissolved in bath before using; still, it can be applied, even if not entirely fluid, in which state it is about the consistency of starch paste. When using, it is well to stir the preparation occasionally, a small stick of wood or a folder may be kept in the cup for this purpose. In hot weather this bole preparation will turn sour within a few days, and it should not be used when decomposition is well advanced. I have tried the addition of preservatives, but find that their presence has an unfavorable influence on the gilding. The preparation of the bole requires so little time and is so simple, that any attempt to stay decomposition, at the risk of probably turning out inferior work, seems unwarranted. When used on writing or surface-coated paper, this preparation is apt to drag a little in burnishing. To prevent it, use a little less plumbago than specified, or use the No. 59.

[No. 60a.] *Bole and Carbolic Acid.* To one-quarter cupful of powdered bole add about two teaspoonfuls of common flour paste and from fifteen to twenty-five drops of commercial carbolic acid. Mix somewhat with a folder and reduce with hot water to the consistency of cream. Do not use it too thin. ¶ Though very simple, this formula gives positive results.

Edge Gilding
and Metal Edges.

Bole
Preparations.

Bole and
Plumbago
combined.

Bole with
Carbolic Acid.

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LAYING-ON SIZES (GLAIR)

Edge Gilding
and Metal Edges.

Laying-on Sizes.

White of Egg
Size.

FOR laying on, nothing is perhaps more suitable than albumen size. Whether that made of fresh eggs is preferable to the kind made of dry albumen, or vice versa, is, I think, largely a matter of opinion. Although I prefer the latter, I will give directions for the preparation of both.

[No. 61.] *White of Egg Size (Glair)*. To the white of a fair-sized egg add a scant pint of water—use soft water if it is to be had. As a matter of fact, soft, or, better still, distilled water is preferable to spring or hard water for any chemical preparation. Clean snow melted, rain-water or condensed steam (the latter is always to be had wherever steam is used) are equal to commercial distilled water. Put the mixture into a one- or two-quart bowl and beat up well with an egg-beater. It should now be left to stand for three or four days, in warm weather, or about six days, in cold weather. At the end of that time, remove scum, if any, stir up and add enough muriatic acid to give the size a slightly sour taste. About ten drops will do it if the acid is strong. You may now strain the size through two or three thicknesses of super, or “crash,” as some call it, into an earthen bowl. Add a couple pieces of gum camphor, each about the size of a large walnut, cover the bowl with a piece of pasteboard into which a few small holes should be punched, and your size will keep a long time. Never return used size to the bowl.

[No. 62.] *Egg Albumen Size*. Put one-eighth pint (half a cupful) of good commercial egg albumen into a clean three-quart

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china bowl and add two quarts of cold water. In summer, let stand three or four days; in cold weather, it should stand from one to two weeks, and instead of using cold water, use it lukewarm. Soft water is always preferable, especially so in cold weather. It is always procurable, either by boiling hard water or by using rain-water, condensed steam or melted snow. When the solution is good and mellow, which you can readily detect by its smell (but do not wait until decomposition has set in and the solution has assumed a greenish hue), stir it up with a folder and add enough muriatic acid to give it a slightly sour taste. It may require thirty to fifty drops, according to the strength of the acid, and it will leave the solution as clear as crystal. Now strain, add gum camphor and cover, all exactly as in No. 61. The size will keep indefinitely and improve with age. Some prefer to use nitro-muriatic acid, but this is optional. I prefer the muriatic. But, remember, the acid and camphor must not be added until the size is good and mellow. On this, and the amount of acid added, depends success in gilding. Neither must the acid be added in quantities sufficient to impart a burning sensation to your tongue.

Whenever you are compelled to use size on the following or second day after preparing it, stir it up well and take out a sufficient quantity for immediate wants only, say half a cupful, and add acid to it, leaving the remainder of it in the bowl unmolested till it has reached the point mentioned above, when the acid and camphor may be added as directed.

[No. 63.] *Egg Albumen and Oxalic Acid for laying on.*
Put into a clean three-quart china bowl one-eighth pint (half

Edge Gilding
and Metal Edges.

Laying-on Sizes.

Egg Albumen
Size.

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Edge Gilding
and Metal Edges.

Laying-on Sizes.

Egg Albumen
Size with
Oxalic Acid.

White of Egg,
Vinegar and
Brandy.

a cupful) of pure commercial egg albumen. Put into another dish one even teaspoonful of oxalic acid, add half a pint of boiling water and a pint and a half of cold water, and pour it into the bowl containing the egg albumen. Add one quart of cold water, stir well with a folder and let stand over night. In the morning, remove scum, stir size again, strain through several thicknesses of super into an earthen crock and add about ten drops of formaldehyde. Keep crock covered. It can be used immediately, produces very good results, and best of all, it does not decompose.

[No. 63a.] *White of Egg, Vinegar and Brandy.* To the white of an egg add three times as much water, ten drops of vinegar and six drops of French brandy; beat up and let stand over night. Used in connection with the No. 60a and filler No. 57, a perfectly solid edge is always assured, and although it is a somewhat strong size, it is capable of fetching considerable lustre.

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METAL EDGES

COVERING book edges with metal leaf is always, even under the most favorable conditions, attended by uncertain results. There is very little gratification in this work. Still, we are sometimes called upon to do it, especially if a silver edge is desired. In this case, it is always advisable to substitute aluminum-leaf for silver, because the latter soon tarnishes. In all metal edging use only the best grade of leaf. The hand-beaten aluminum, for silver, and aluminum-gold, for gold, sold by some dealers in bookbinders' supplies, are superior articles of this class.

Metal Edges.

Concerning the mode of application: Very close observations and practice have led me to the conclusion that to be reasonably successful, the edge must be waterproofed before the metal is laid on.

[No. 64.] *Liquid Casein Glue*. An admirable article for waterproofing, I find, is liquid casein glue of the consistency of thin molasses. The Casein Company of America, Bellows Falls, Vt., furnishes this article in a dry, crushed form. They also give directions for dissolving it. This article is sold by that firm under the name of "Bookbinders' Albumenoid Glue." It can be used for a great many purposes in the bindery.

Liquid Casein
Glue for rubbing
down.

Proceed as follows: Fill the edge with No. 57, put in press, scrape and rub down well with No. 64 till the edge presents a glossy surface. Apply the bole and lay on with either No. 57 or blood albumen size. The latter prepare as follows:

[No. 65.] *Blood Albumen*. To one-third of a cupful of good

FORMULAS FOR BOOKBINDERS

Metal Edges.

blood albumen add two-thirds of a cupful of water, let stand over night, then remove scum, stir the size well and strain through a piece of super. It is now ready for use, but it will decompose soon. For this reason, it is not advisable to prepare much of it at a time.

Blood Albumen
for laying on.

Whichever size is used, apply it liberally. For conveying the metal leaf from the cushion to the edge, a greased cham-ouis tip, as is used in finishing, will do good service. The crepe tip can also be used if sufficient grease is applied to it, but it will be useless thereafter for gilt-edging. Like in edge-gilding, the metal should be rubbed down before the edge is entirely dry. After this has been done, allow plenty of time before you commence burnishing. The bloodstone cannot be used, but after waxing, go over the edge once or twice with the polished agate. This completes the burnishing, or rather, the smoothing down of the metal, for bringing up lustre is out of the question. To wind up, the edge is sometimes given a light coat of bookbinders' varnish reduced with considerable alcohol, or a coat of banana varnish. The latter is a comparatively new article, and is used by plumbers as a binding medium for bronze powders in decorating iron work. This completes the operation. If these directions are carefully followed, you will meet with more than average success.

RED-UNDER-GOLD EDGES

THIS is a novelty which should never be employed in good bindings, except in limp bible work, where it relieves somewhat an otherwise monotonous effect. The plainly visible red border following the three edges of every leaf of the book, which is necessarily produced in the process of coloring, is by no means attractive.

Red-under-Gold
Edges.

[No. 66.] *Eosine*. This color, used largely in ruling, is an aniline dye. It is only necessary to combine it with some liquid which is highly penetrating. The point is: The edges, which are colored after trimming, before the books are placed in the gilding press, must absorb enough color to leave them still red after the scraping has been done. Of course this action is also largely influenced by the quality of the paper used in the book, and the color must be prepared to suit these varying conditions. Rice paper will absorb this dye (even if dissolved only in water with the addition of a little alcohol and aqua ammonia) in such a way that the red borders of the leaves present nice, clean, sharp edges. In other papers these edges would be more or less ragged. This explains that this red-under-gold process is merely used in limp bible work—editions for Sunday-school teachers—printed on rice paper exclusively. To repeat: If red-under-gold is to be applied to rice paper, it is only necessary to dissolve the eosine (it comes in powder form) in a little alcohol; then add a few drops of aqua ammonia and sufficient water to produce the desired shade of red. Too much aqua ammonia will impart to the color an

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Red-under-Gold
Edges.

undesirable blue tint, and care must be taken to avoid this.
[No. 67.] *Eosine, Oil of Spike and Alcohol.* Eosine dissolved in oil of spike and alcohol with the addition of a little boiling water will give better results on some other grades of papers. The presence of the oil of spike in the color will not interfere in the subsequent gilding, and will brighten the color.

[No. 68.] *Eosine dissolved in the No. 57.* In most cases, a little of the dye added to this filler will be all that is necessary.

In some instances it will be best to apply the color solution warm. It is needless to say that any other color besides red can be used for this purpose, yet the selection must be confined to dye-stuffs. Use a soft bristle brush for applying the color; in some instances a large, flat camel's-hair brush is better. Finally, a little judgment and practice will soon enable you to know which one of the preparations enumerated is best suited for any particular grade of paper. The No. 68, however, is the most practicable. In all red-under-gold work, bole may be safely used in connection with the gilding, preferably the No. 60a. If for any reason the application of bole is to be omitted, it will be advisable to rub down with either No. 57, 58 or 64. This will have the good effect of fixing the red color somewhat.

PART THREE

BOOK-EDGE-MARBLING AND COLORED EDGES

MARBLLED AND COLORED EDGES

THE art of marbling is indisputably one of the most instructive branches connected with bookbinding, because results depend entirely upon chemical action. The hours spent at the trough furnish very instructive lessons, and the work is highly gratifying on account of the quick results. Though much discussed in treatises and technical papers, the process of marbling is yet shrouded in mystery. The real pointers, the guides to success, have never been made known. Consequently not many successful marblers are to be found, and among these but a few know how to prepare dry colors such as chrome yellow, lampblack and ultramarine blue so that they will neither rub nor break. If they could help it, marblers would not buy colors in paste form from supply houses, paying from thirty to forty cents a pound for chrome yellow, when this color can be bought in dry form for about one-third of that price, and ground in water for even less than that. These assertions are not advanced in a spirit of boastfulness or self-complacency; I simply state facts. I will not give here an exhaustive treatise on the art of marbling, but the following formulas will completely disclose the mysteries hitherto cautiously guarded, and put the ambitious worker on the path to success. It is my intention to later issue in book form a complete treatise on marbling.

Book Edge
Marbling.

Introductory.

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MARBLING SIZE

Book Edge
Marbling.

—
The Sizes.

THE size plays a very important part in marbling. A common mistake is that too little attention is paid to the selection and preparation of the raw material. It is also well to remember that a preparation will not produce the same results in different styles or patterns of marble. Thus, a size especially prepared for comb edges, will hardly give satisfactory results in hair-vein work. The preparations and combinations below enumerated, however, cover the field well.

FORMULAS

[No. 69] *Carrageen (Irish Moss) Size*. Put twelve ounces of good carrageen into a ten-gallon agate-ware kettle, add a half ounce of powdered borax, twenty-seven quarts of cold water and two teaspoonfuls of beechwood creosote. Place it on the fire; after it has boiled five minutes, take it off, add three quarts of cold water and stir well. The following morning strain it first through a coarse tin colander, then through a piece of coarse cloth. It is now ready for marbling.

Carrageen
(Irish Moss).

As there are many different qualities of carrageen it may be necessary to increase or decrease the amount here specified to obtain size of the proper consistency. Do not add too much cold water to the boiled size, as this has a tendency to weaken it. If after boiling and cooling, the size is abnormally thick, it is better to throw it away and boil a new batch, using less carrageen, than to try reducing it with a lot of cold water. ¶ There are two kinds of carrageen in the market, one being

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of a light yellowish color, and the other is of a brownish hue. The latter usually contains more starch than the former and is therefore better suited for our purpose.

Carrageen size requires that the marbling color be of the very finest grade, a property usually present in lake colors only, therefore I cannot recommend its use in large shops where marbling is done on a large scale. There is to my knowledge but one line of marbling colors in the market which have been expressly prepared for carrageen size, namely, the "Halfer" colors. These colors will produce on this size results that are really wonderful. They can be bought only from The Halfer Marblers' Supply Co., Buffalo, N. Y.

Book Edge
Marbling.

—
The Sizes.

[No. 70.] *Gum Tragacanth Size.* Put twelve ounces of No. 2 gum tragacanth into a three-gallon earthen crock, add one even teaspoonful of tin salts, two heaping teaspoonfuls of acetate of soda, two heaping teaspoonfuls of salts of tartar and two quarts of boiling water. Stir briskly with a wooden ladle while adding the water. If you wish to produce fine, mellow size, dissolving every particle of gum the same day, so that it can be used the following morning, you must add a quart or two of boiling water at intervals of about an hour; instead of stirring it with the wooden ladle you must beat it up every little while with a large "Dover" egg-beater. To this end, you must set your size the first thing in the morning and continue to add hot water and to beat it as directed till the three-gallon crock is filled. At the end of the day you will have a fine mellow size of the consistency of thick paste. Take about two quarts of this paste, put it into a twelve-

Gum
Tragacanth.

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Book Edge
Marbling.

—
The Sizes.

Gum
Tragacanth.

Gum Hogg.

quart, clean (preferably new), wooden water pail, add two quarts of boiling water and beat up; add more water, beat, and so continue until the pail is full. Then strain through a piece of coarse cloth into another clean pail, empty the now strained size into the trough and repeat the operation till the trough is about three-quarters full. You may now add enough cold water to almost fill the trough, stir well with the ladle and let stand over night. In the morning, skim surface, stir again, balance your colors, and when all is right, commence marbling. The thick, paste-like size left in the crock, cover with a little water to prevent its hardening on the surface. The twelve ounces of gum make seventy to eighty quarts of a good and serviceable size that will keep a long time. For the benefit of beginners let me say that fresh size never works as well as that which has been used a day or so, therefore if marbling is done continually, do not empty your trough too often: once a month will do. If you marble once or twice a week, throw away about one-half of the size in the trough every other week, and add enough fresh size to fill the trough. Follow these directions and your colors will respond more readily. Zinsser's (for address see index) No. 2 gum tragacanth has always given me the best results. When you prepare smaller quantities, always use these same proportions. [No. 71] *Gum Hogg Size*. Place twelve ounces of gum hogg in a ten-gallon agate-ware boiler, add two ounces of salts of tartar and six quarts of water (boiling-hot water preferable). Let stand over night. In the morning add half ounce of salicylic acid, one teaspoonful of beechwood creosote and about

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twenty-five quarts of hot or cold water. Place on the fire and boil about one and one-half hours; stir occasionally to prevent burning, run through a colander and later through a coarse cloth. It will not wholly dissolve but do not use alkali (salts of tartar in this instance) to dissolve it entirely. The residue may of course be preserved for a future boiling. In an earthen crock this preparation will keep for some time, especially if kept in a cool place. Gum hogg comes in small, irregular lumps. Before dissolving the lumps you better crush them, but this is not absolutely necessary. Some dissolve it in cold water without boiling, but the results are not so satisfactory, requiring the use of large quantities of alkali and ammonia. Others prepare it thick and then dilute with water. After this method the twelve ounces of gum with the specified ingredients are boiled in six quarts of water and then kept in an earthen crock. The size must be strained after a certain quantity of it has been diluted.

Book Edge
Marbling.

—
The Sizes.

Gum Hogg.

[No. 72.] *Combination M. Gum Tragacanth and Gum Hogg.*

Prepare by simply mixing both sizes in proportion of one part of gum hogg size to ten parts of gum tragacanth size. This combination is adaptable in all drawn patterns and in the productions of Greek (wave) marbles.

Tragacanth and
Gum Hogg
combined.

[No. 73.] *Combination N. Gum Tragacanth and Carrageen.*

The combination of about five quarts of moss size and ten quarts of gum tragacanth size makes an admirable size for drawn edges. However, as this combination sours more readily than the No. 72, I cannot recommend it.

Tragacanth and
Carrageen
combined.

By the use of either of the preparations above enumerated,

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Book Edge
Marbling.
—
Tragacanth the
best Size.

there need be few if any technical difficulties encountered. **Q** Tragacanth size is indisputably most satisfactory. It is easily prepared, costs but one cent per quart and will keep for months. Colors of either fine or coarse texture can be used upon it with equally good results.

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A BINDING MEDIUM FOR MARBLING COLORS

IN treatises we have often read that by adding wax to the colors the rubbing and breaking of the latter will be prevented, but only in very few instances have we been informed how and in what form the wax is to be united with a water-color. In these exceptional instances we have been told to saponify the wax. Although wax in such a form will readily unite with a water-color and prevent rubbing, we are still confronted with the most important and the most vexatious question: "The breaking of the color." Besides, an excessive addition of saponified wax will cause the colors to expand too much. The question of how the breaking of the color may be prevented, has never been sincerely and satisfactorily answered. It represents the main issue in marbling. No marbler can call himself a master of his art unless he is able to prepare a true mineral color suitable for this work so it can be drawn on the surface of the size without breaking up into fragments. Such a formula is almost priceless. Here it is:

[No. 74.] *Binding Medium for Marbling Colors.* Put a cupful (one-half pint) of gum gattie into a two-quart china bowl, add to it one even teaspoonful of salts of tartar and one quart of boiling water. Keep the gum hot in bath all day, adding a little hot water at intervals of an hour or so, but at least sufficient to leave one quart of dissolved gum of the consistency of thick molasses at the end of the day. The residue, being lumps of undissolved gum, you may save for a future boiling. Next, strain the quart of gum through a piece of

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Marbling.

—
The Preparation
of the Colors.

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Book Edge
Marbling.

The Preparation
of the Colors.

coarse cloth, add four heaping teaspoonfuls of refined honey, a scant half ounce of yellow prussiate of potash reduced to very small fragments, and one ounce of common yellow laundry soap shaved fine. I have found Lautz's Acme soap to be just right for this purpose. Return this mixture consisting of one quart of dissolved gum gattie, four teaspoonfuls of honey, half ounce of yellow prussiate of potash and one ounce of laundry soap, to the bath and apply heat till every particle of soap and potash has been dissolved. Occasional stirring with a folder will facilitate this. If directions are followed and the soap is right, this solution should be as white as milk when the ingredients are all dissolved. When this stage has been reached, melt in another dish three ounces of white beeswax (not paraffine), remove from fire, add a dash of cumole (No. 51), stir with folder and add to it gradually, stirring briskly at the same time, the hot gum solution. The preparation is now ready and should be of a creamy white color and not too pasty in texture but rather glutenous. Preserved in a jar, it will keep forever. According to the fineness of the color, add from one to two teaspoonfuls of the preparation to each cupful of liquid color. It is, however, best to add it when color has been only so far mixed with water as to leave it in paste form. If the color is a lake, do not add too much of the medium, as it would cause such a color to run; besides, it does not require it. In the preparation of dry mineral colors like chrome yellow, proceed thus: Fill an ordinary cup scanty one-half full of dry color, add from five to ten drops of beechwood creosote, from ten to fifteen drops of gall, a like quan-

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tity of alcohol and sufficient boiling water to form a stiff paste; then about one and one-half teaspoonfuls of medium. Mix thoroughly, run through the grinder, or in the absence of one, work out all lumps with the folder and gradually fill cup with cold water (preferably soft), and let it stand. The following day the color will be ready and works well on mellow size. A small disc grinder for grinding colors is not only very handy, but indispensable where marbling is done to any extent. Five dollars will buy a fair-sized machine. They are arranged so they may be operated either by hand or by power. The grinding by the machine will make the color perfectly smooth and better incorporate the ingredients than by doing it with a brush or folder. This medium easily binds any color, and will positively prevent the breaking of it.

Book Edge
Marbling.

—
The Preparation
of the Colors.

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EXPANDING MEDIUMS

Book Edge
Marbling.

—
Expanding
Mediums.

THERE are numberless ingredients which are quite serviceable as expanding mediums, but beef-gall recommends itself, particularly for economic reasons and as being well suited for all general purposes. Only in few instances will a more effective medium be necessary, and where such a condition is indicated, as, for instance, in the body color of spot marbles, an addition of a few drops of spirits of soap will give the desired results. Both preparations are fully described below.

Beef-Gall

[No. 75.] *Beef-gall.* The preservation of beef-gall is easily accomplished: Simply add one part of pure grain-alcohol to five parts of fresh beef-gall, stir well, let stand a week and then pour off very slowly into a stone jug; throw away the white sediment. Tightly corked, it will keep forever.

Spirits of Soap.

[No. 76.] *Spirits of Soap.* Put into a three-quart china bowl three-fourths of an ounce of white castile soap finely chipped or scraped, add one pint of grain-alcohol and apply heat till soap is dissolved. This must be done very carefully in water bath to prevent ignition of the volatile vapors which are generated by this process. When every particle of soap has been dissolved and the solution is quite hot, pour it into two quarts of warm, soft water. The solution is now ready and should be kept in a closed bottle. It should only be used for spot and hair-vein marbles in the ground or body color, in addition to a little gall. As colors which contain spirits of soap will soon spoil, only mix enough color for the job in hand.

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These constitute the principal formulas for book-edge marbling. A complete treatise on this subject, including suggestions for bronze-color marbling, and the fixing of color to large sheets of paper (the manufacture of marble papers) will be published later.

Book Edge
Marbling.

—
Concluded.

COLORED EDGES

Colored Edges.

PLAIN colored edges are in good taste on all classes and grades of work. But they should be burnished, as this trifling extra touch imparts the much-needed finish. The colors should be well chosen, ought not to fade, and be so prepared as to burnish well and readily. To further enhance the decorative effect, the edges may be gold tooled as explained in the following pages.

Coal-tar (aniline)
Dyes.

[No. 76a] *Coal-tar Dyes (aniline)*. These dyes can now be had in almost any color. On account of their brilliancy and because they need merely to be dissolved in water and sometimes in a little alcohol, they are much used for single color effects on book edges, especially for cheaper grades of work. However, they do not burnish well and are not as light-proof as might be desired. Paper-rulers also use them very extensively in place of the more costly vegetable or other organic dyes. Aniline dyes can be had of all technical supply houses. Zinssers (see index for address) carry a full line. They are also to be had sometimes of local druggists.

Fletcher Ink
Extracts.

[No. 77.] *Fletcher Ink Extracts*. The Fletcher Ink Extracts, made by N. P. Fletcher & Co., Hartford, Conn., are also highly recommendable for this purpose.

A bright shade of eosine, which is an aniline dye, makes a very good red edge, the shade of which may be further varied by the addition of a little yellow aniline. The coloring can be done with either a sponge or brush; a good stencil brush will do the work well.

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The following colors produce much more durable results than aniline dyes, but they cost more and are much more difficult to manipulate.

[No. 78.] *Chinese Vermilion (dry form)*. This pigment, although somewhat expensive (\$1.25 per pound), makes a very durable and highly artistic edge. How to prepare it: Put into a quart bowl thirteen ounces of the dry pigment, add twenty drops of beechwood creosote and enough grain-alcohol to form a very stiff paste. Work into this with a folder about ten heaping teaspoonfuls of No. 74; four teaspoonfuls of glycerine and rose-water and sufficient boiling-hot water to make about half a pint of color. Now dissolve a heaping teaspoonful of good ammonia alum in half a cupful of boiling water and add it to the color. Finally, add enough hot soft water to make one pint of color. If it still rubs, simply add a little more of No. 74. The color must not be used too thin, but rather in a thin, syrupy condition. If the paper is hard, apply the color with a flat camel's-hair brush; if soft, use a stencil brush. Do not use this color unless you intend to burnish the edges, for which purpose use an agate burnisher. The steel burnisher may be used, but be careful not to use excessive heat.

Colored Edges.

Chinese
Vermilion.

[No. 79.] *Tin Solution*. A few drops of tin solution, made by dissolving English tin in hydrochloric acid, will somewhat heighten the effect of No. 78, but be very careful, as an excess of it will disintegrate the No. 74 contained in the color and so cause the color to rub.

Tin Solution.

Chinese Vermilion can be had of Zinsser, New York.

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FORMULAS FOR BOOKBINDERS

Colored Edges.

English and
American
Vermilion.

[No. 80.] *English Vermilion (dry form)*. This pigment can be bought at most all painters' supply stores, costs from thirty-five to fifty cents per pound and its shade is considerably brighter than that of Chinese Vermilion. Any good grade of American vermilion may be substituted for the English, although the latter is better. The directions for preparing are the same as Chinese Vermilion. In fact, the same directions apply to all mineral colors of whatever shade, except that the use of alum and the tin solution are entirely omitted. Colors for this purpose should be bought in dry form.

French
Carmine.

[No. 81.] *French Carmine No. 40 (dry form)*. This organic pigment, prepared from cochineal, is one of the most durable and beautiful red colors we have. As manufactured to-day it is a lake color, almost bodyless, resembling a dye. It cannot be used for marbling, but makes a fine, durable ruling ink, and a suitable color for plain edging. The price is \$8.00 per pound, but as one ounce will last a long time the cost is not prohibitive. To one ounce of dry color add about thirty-five drops of aqua ammonia and enough warm soft water to form a stiff paste. Work into it with a folder about one heaping teaspoonful of No. 74 and then reduce with warm soft water to the right consistency. Too much ammonia will give it an undesirable bluish hue, so be careful. The addition of a little bright red aniline, eosine for instance, dissolved in water, will improve the shade of the carmine. Apply the color with a brush as usual, and when dry, burnish either cold or hot.

A Permanent
Green.

[No. 82.] *Indigo Blue and Picric Acid for Green*. Dissolve a little picric acid in hot water and add enough of this to in-

FORMULAS FOR BOOKBINDERS

indigo paste to produce the desired shade of green. A few drops of oil of vitriol will improve it. If the edges are to be burnished, work a little of No. 74 into the indigo paste before adding the picric acid. This green color is very durable.

Colored Edges.

[No. 83.] *Gold-tooling*. To gold-tool plain-colored edges it is only necessary to give the edge one or two coats of No. 21; when dry, lay on gold with No. 42; tool, remove surplus gold with a piece of flannel, clean with a little gasoline and then slightly reburnish.

To Gold-tool
Colored Edges.

PART FOUR
MISCELLANEOUS FORMULAS

MISCELLANEOUS FORMULAS



I VENTURE to say that not one of the many patent pastes now on the market are equal in quality to the old-fashioned home-made kind. In most of the patent pastes, when used on leather, the flour seems to separate from the water, leaving an almost dry deposit on the leather, thus the paste loses most of its adhesiveness. The following formula has always given me very satisfactory results: [No. 84.] *Flour Paste*. Place in an enameled or agate-ware wash-basin, holding about a gallon, one pound of good white, (wheat) flour. Add to it one heaping teaspoonful of powdered alum, preferably alum potassium, and one-half teaspoonful of salicylic acid. Now mix this with one pint of lukewarm water to a nice, smooth paste, add two teaspoonfuls of carbolic acid (commercial strength) and one teaspoonful of oil of winter-green. Gradually add three pints of cold water, stirring the mixture well with a wooden paddle to prevent the formation of lumps, and place on hot fire. Right here, in the boiling, lies the secret of good paste making. Have a hot fire, the hotter the better; if a gas stove, turn the gas on full force. Brisk stirring is not necessary during the process of cooking; simply keep working the thickened mass from the sides of the basin to the center, till every particle of the liquid has been thickened. Do not be alarmed at the lumpy appearance of the

How to make
Flour Paste.

FORMULAS FOR BOOKBINDERS

Flour Paste.

mass, but pay strict attention to the thickening process. As soon as the last of the liquid has disappeared and the mass has assumed a slightly darker color, take the basin off the fire and very briskly stir with wooden paddle until the paste is smooth. If the flour was mixed well, and sufficient heat used in cooking, the paste will be absolutely smooth and free from lumps, in spite of its lumpy appearance on the fire. You will find this paste very satisfactory in all respects, but for the sake of variety I will give another good formula.

Flour Paste
with Dextrine.

[No. 85.] *Flour Paste with Dextrine.* Put into a one-gallon enameled kettle three pounds of the best white flour, two ounces of yellow dextrine and half an ounce of powdered borax. Add gradually three pints of water, forming a nice, smooth paste, after which add two teaspoonfuls of carbolic acid, one teaspoonful of oil of wintergreen, half a teaspoonful of oil of cloves, and gradually four quarts and one pint of cold water. Now mix it all well, place on fire and proceed as in No. 84. For cooking, live steam of about sixty pounds boiler pressure can of course be used in place of fire. In this case, wooden receptacles may be used for the cooking.

To take Iron
Stains out of
Red Russia
Leather.

[No. 86.] *Removing Iron Stains from Red Russia Leather.* "Accidents will sometimes happen, although they never should." In covering blank books, iron spots are apt to appear on the Russia leather. This is usually caused by the use of old, worn-out tins for pressing. These spots can be entirely removed by an application of a little muriatic acid to the dark spot, gentle rubbing with the tip of the finger and the immediate washing with clean water. When the discoloration is

FORMULAS FOR BOOKBINDERS

very slight, the acid may be diluted by adding a little water. No. 87. *The Stamping of "Keratul."* We are living in an age of imitations. No sooner do we see a worthy originality, embodying the best of everything, honest labor and good raw material, than some one gets up a cheap imitation. In leather, all of the popular grainings, such as seal, lizard, alligator, levant, monkey, etc., are to be had in cowhides and skiver. More, the very substance—the leather itself—has been imitated, and paper and cloth are being manufactured in large quantities in such a way as to resemble leather. I say "resemble," because it can never amount to more than a mere semblance of the real, genuine article. To this class of imitations belongs "Keratul," a woven fabric, one side of which is coated with a very peculiar and very nasty waterproof concoction. We find this imitation of leather used on all sorts of cheap work, even blank books, much to the finisher's displeasure, for neither gold nor metal will hold. However, this difficulty may be overcome to a certain extent. Wash the material with alcohol, benzine, ether, diluted muriatic acid, aqua ammonia or turpentine, and when dry apply one coat of any of the finishing sizes or glairs as specified under the heading "Glair and Size." For a glossy surface use, for instance, No. 21; or, if a dull surface is desired, use No. 28. For laying on use oil very sparingly. A coat of paste-wash before sizing, using the No. 8, is also beneficial. When properly treated in this way it will offer no perceptible difficulties. Most finishers would rather stamp it than the ingrain wall-paper, which of late has found its way into some binderies as a probable

The Stamping of
Imitations of
Leather.

FORMULAS FOR BOOKBINDERS

Almost any kind
of material may
be stamped in
gold or metal.

covering material, because of its cheapness. ¶ I wish to emphasize the fact that gold- or metal-leaf may be successfully applied by means of heated metal dies or tools to any material offering some resistance when brought under pressure and permitting of a surface application of size. In case these favorable conditions exist and yet the gold- or metal-leaf fails to adhere, the difficulty can without doubt be traced to some peculiar surface coating which the material received in its manufacture. That coating may be oil, gum, wax, or a combination of several of these, and render an application of an even coat of size impossible. In all such cases it is only necessary to wash the material with some chemical which will, technically speaking, "cut" the obnoxious coating, before applying the size. With this accomplished, it will surely offer no further difficulties. The only exception being materials of a very porous nature, which, however, only require to be filled before sizing.

The Preparation
of Soft Rubber.

[No. 88.] *How to Prepare Soft Rubber.* Pure gum rubber, either in its natural state or softened, is admirably adapted for removing the surplus gold from finished books or stamped cases. By its use we are enabled to remove every speck of loose gold from grained or smooth material without injury to the latter. There is nothing original about this method, as we all know it, but few of us know how to properly soften the gum rubber, so as not to have it sticky, notwithstanding that it is the simplest thing in the world to accomplish. Here is the way to go about it: Take half an ordinary cupful of pure gum rubber cut into very small pieces, fill the cup with

[108]

FORMULAS FOR BOOKBINDERS

benzine, cover it and let it stand over night. In the morning you will find that the rubber has absorbed all of the benzine; if not, let it stand another half day. Take the rubber out of the cup, place it on a paring stone and knead it with your hands till it forms a uniform mess. It will stick to your hands enough to be annoying, but as the benzine evaporates and the rubber thickens, it will easily peel off. The rubber should now be moulded into a cake or ball, returned to the cup and covered with benzine. The next day knead it again until it is no longer sticky, lay it aside for a couple of hours and it is ready for use. Of course the benzine will continue to evaporate, leaving the rubber eventually as hard as it was in its natural state, and if you are bent on using the rubber rather soft, you will find it necessary to put it through this process occasionally. By adding a little coal oil, turpentine, or almost any other kind of oil to the benzine, the rubber will remain soft longer, but be careful in adding oil, as too much of it will leave the rubber sticky. In cutting up the gum rubber it is well to cut it as small as possible, as this will facilitate the work of kneading it. Pure gum rubber can be bought at rubber houses or of dealers in rubber belting packing, etc. An ounce of it is sufficient to last a long time. I do not think it is necessary to soften the rubber at all. A piece of pure gum rubber two and one-half inches long, two inches wide and a half inch thick will answer every purpose. If this fails, softened rubber will fail also, and any gilt impression on whatever kind of material, not solid enough to withstand the friction of this piece of rubber, can never be called good work. The only

The Preparation
of Soft Rubber.

FORMULAS FOR BOOKBINDERS

advantage possessed by softened rubber is that every particle of waste gold is saved by its use. Whether or not this is sufficient compensation for the time consumed in preparing it, I will leave to the judgment of my readers.

To prevent the
sticking of the
leaves in
marbling, etc.

[No. 89.] *How to prevent the sticking of the leaves in books printed on surface-coated paper, when applying marbled or plain color effects to the edges.* This manipulation, although very simple, is little known. It consists in merely fanning out the leaves in both directions, once each way, just after the edges are moistened, whether in coloring, marbling or gilding. In the latter instance the fanning out is to be done right after the application of the filler No. 57. But the trick must be done before the leaves have had a chance to become fastened to one another or the work will be in vain.

THE SPRINKLING OF LEATHER

Iron for
sprinkling of
leather.

[No. 90.] *Iron Solution.* Into a one- or two-quart iron kettle put a handful of iron filings or shavings, or, if neither is to be had, "cut" nails (not wire nails); add a quarter of an ounce of green copperas (sulphate of iron), a piece of gall-nut about the size of a pea, and one pint of pure vinegar. Place on the fire and after it has boiled a minute or two, take off and pour the solution, iron and all, into a two-gallon earthen crock, where it is kept ready for use. As it grows stronger with age, always try it on a scrap of leather before sprinkling the book. If too strong the color will be heavy and drag when rubbed with the hand. Dilute with water till this defect disappears. When using this solution for sprinkling, do not wash

FORMULAS FOR BOOKBINDERS

the book with oxalic acid, either before or after sprinkling. Proceed as follows: Sprinkle, rub the sprinkled book with the flat of your hand, fill with No. 10; when dry apply a coat of No. 21 diluted with three parts of water; when this is dry, give another coat of No. 21 full strength. The first coat of No. 21 must be applied very sparingly and carefully, in order to prevent the streaking and running of the iron. Use a very fine soft sponge for this purpose.

[No. 91.] *Iron Solution.* A very much simpler solution of iron suitable for sprinkling may be prepared by putting a handful of either iron filings or "cut" nails into a dish and covering the same with pure vinegar. In the course of a week or so the solution will be of sufficient strength for sprinkling.

A simple iron solution for sprinkling.

[No. 92.] *Bi-chromate of Potash.* Place in a small china bowl a piece of this chemical about the size of an English walnut, and add a cupful of hot water. It will dissolve at once and is then ready for use. As in the case of iron, test the strength of the solution on a scrap of leather before applying it to the books. If it is pale and indistinct, the solution is too weak, and you must add more bi-chromate of potash. If it is too strong it will leave a powder on the surface of the leather. This can be easily removed with a clean cloth, but it is best to avoid it by simply adding a little more water. Still, the color may be of correct strength and yet exhibit this same defect. If so, it is due to grease on the leather. In this case wash the book first with oxalic acid and then sprinkle. In fact, when using this sprinkling solution it is always best to wash the leather first with a solution of weak oxalic acid No. 7a, but be

Bi-chromate of Potash for the sprinkling of leather.

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careful, too strong a solution will impart an undesirable reddish brown hue to the leather. After sprinkling, fill with paste, either flour or starch, and when dry apply either size or glair. It is optional as neither vinegar nor acids will destroy the sprinkling.

Chromic Acid for
sprinkling
leather.

[No. 93.] *Chromic Acid*. Like bi-chromate of potash, chromic acid produces a brown color. However, the color produced by the latter is considerably more intense—deeper—than that produced by the former. The mode of application is exactly the same in both cases, so that the directions given for bi-chromate of potash should also be followed in the use of chromic acid.

BLANK-ROLLING OF FLESHES

Blank-rolling of
Fleashes.

[No. 94.] *Blank-rolling of Fleashes*. Nice, clean, white stock is certain to produce an even brown-black color in blank-rolling. However, much dark stock of inferior quality finds its way into many binderies, rendering good blank-rolling very difficult. A good remedy for this defect consists of washing the books with No. 74 diluted with considerable water. The nap of the leather is easily restored by brushing with a shoe-brush when the blank-rolling is done.

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